

11. On some Equatorial and other Species and Genera of African Ichneumoninæ contained in the Collection of the British Museum. By CLAUDE MORLEY, F.E.S., F.Z.S., &c., Framlingham, England.

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Only a small part of the very numerous specimens now lying idle and neglected in our National Museum is here treated of—in fact, only species referable to the first (Ichneumoninæ) of the five known Subfamilies of Ichneumonidæ have been touched upon, and of that Subfamily no more probably than a tithe. One of the interesting points of the present paper is the discovery in Equatorial Africa of genera, though no new species known hitherto only from Asia; and this goes to strengthen a possible former connection of the two faunas, by way of the Chagos Archipelago and the Seychelle Islands, suggested by me (Trans. Linn. Soc. xv. 2, 1912, p. 170). But, although identical species are captured at Lyndhurst and Simla, none of the African ones to the south of the Sahara—except such stragglers as *Bassus latatorius*—appear to be quite the same as upon the northern coasts of the Mediterranean; indeed, a few forms, *e. g.*, the genera *Magwenga* and *Skiapus*, are exclusively Ethiopian, while the larger *Xoridides* and *Cryptides* are among the finest and most beautiful in the world. All, or nearly all, the insects of the present paper are contained in the material collected by S. A. Neave in East Central Africa during recent years; wherever there is reference to other entomologists their names are inserted in full.

CLASSIFIED CATALOGUE

of Species and Genera herein described.

ICHNEUMONIDÆ.	CATADELPHUS <i>Wesm.</i>	XANTHOJOPPA <i>Cam.</i>
ICHNEUMONINÆ.	1. <i>anceyi Berth.</i>	1. <i>lutea Cam.</i>
Joppides.	2. <i>nigrocyanæus Tosq.</i>	2. <i>debilitor, sp. n.</i>
EPIJOPPA <i>Morl.</i>	3. <i>rubricaput, sp. n.</i>	3. <i>rotundator, sp. n.</i>
1. <i>verecunda Tosq.</i>	ERYTHROJOPPA <i>Cam.</i>	4. <i>truncator, sp. n.</i>
2. <i>fumosa Morl.</i>	1. <i>rufipedalis, sp. n.</i>	5. <i>inermis Morl.</i>
3. <i>pygidifer, sp. n.</i>	2. <i>nigripedalis, sp. n.</i>	6. <i>explanator, sp. n.</i>
4. <i>dimidiata Morl.</i>	LEPTOPHATNUS <i>Cam.</i>	7. <i>gracilator, sp. n.</i>
5. <i>corrugata Tosq.</i>	1. <i>ruficeps Cam.</i>	8. <i>striator, sp. n.</i>
6. <i>eucelea Morl.</i>	CTENOCHARES <i>Först.</i>	9. <i>bipapillator, sp. n.</i>
7. <i>carinifer, sp. n.</i>	1. <i>blandita Tosq.</i>	10. <i>collifer, sp. n.</i>
8. <i>triangulifer, sp. n.</i>	2. <i>testacea Szépl.</i>	11. <i>cothurnator, sp. n.</i>
9. <i>variabilis Morl.</i>	3. <i>microcephala, sp. n.</i>	12. <i>geminator, sp. n.</i>
10. <i>pilosa Cam.</i>	4. <i>gracilentor, sp. n.</i>	13. <i>areolator, sp. n.</i>
11. <i>striatifrons, sp. n.</i>	HOPLISMENUS <i>Grav.</i>	
12. <i>rubricata Morl.</i>	1. <i>fulvator, sp. n.</i>	
TROGUS <i>Panz.</i>	2. <i>cibdelus Tosq.</i>	
1. <i>gypis, sp. n.</i>	ISCHNOJOPPA <i>Kriech.</i>	CORYMBICHNEUMON, <i>g. n.</i>
	1. <i>luteator Fab.</i>	1. <i>carinifer, sp. n.</i>

- AGLAJOFFA** *Cam.*  
 1. *johannis Cam.*  
 2. *glabrinotor, sp. n.*  
 3. *comptulus Tosq.*
- CÆLICHNEUMON** *Thoms.*  
 1. *scopulifer, sp. n.*  
 2. *cornellifer, sp. n.*  
 3. *maculiseutis Cam.*  
 4. *natalensis Cam.*  
 5. *snblunifer, sp. n.*  
 6. *genimifer, sp. n.*  
 7. *testaceus Cam.*  
 8. *globulifer, sp. n.*  
 9. *sulcifer, sp. n.*  
 10. *thyridifer, sp. n.*  
 11. *striatifer, sp. n.*
- Ichneumonides.**  
*Oxyppygini.*
- LAGENESTA** *Cam.*  
 1. *sinifer, sp. n.*  
 2. *duplicator, sp. n.*  
 3. *triplicator, sp. n.*  
 4. *triangulifer, sp. n.*  
 (monitor, sp. n.)
- MELANICHNEUMON** *Thoms.*  
 1. *carinifer, sp. n.*  
 2. *melanopterus, sp. n.*  
 3. *glaucopterus, sp. n.*
- LEPTOTHECUS** *Cam.*  
 1. *alutacefer, sp. n.*  
 2. *punctifer, sp. n.*  
 3. *mesonotifer, sp. n.*
- STENICHNEUMON**, *Thoms.*  
 1. *ochraceator, sp. n.*
- CRATICHEUMON** *Thoms.*  
 1. *testacecolor, sp. n.*
- BARICHEUMON** *Thoms.*  
 1. *concinctor, sp. n.*  
 2. *incubitor Linn.*  
 3. *planinotum, sp. n.*  
 4. *sexalbatu Wesm.*  
 5. *fossifer, sp. n.*  
 6. *mundatus Tosq.*
- ICHNEUMON** *Linn.*  
 1. *rubromatus Cam.*
- CHASMIAS** *Ashm.*  
 1. *glaucopterus Morl.*  
 2. *ruficaudator, sp. n.*
- Amblyppygini.*
- AMBLYTELES** *Wesm.*  
 1. *spilopterus, sp. n.*  
 2. *auricomus, sp. n.*  
 3. *fulvocaudatus Tosq.*  
 4. *negotius Fab.*  
 5. *maculicaudis Cam.*  
 6. *testaceator, sp. n.*
- SPILICHNEUMON** *Thoms.*  
 1. *didymatus, sp. n.*  
 2. *unipunctator, sp. n.*  
 3. *triangulator, sp. n.*
- XENOJOPPA** *Cam.*  
 1. *fossifrons, sp. n.*  
 (kali, sp. n.)
- CTENICHNEUMON** *Thoms.*  
 1. *castanopygus, sp. n.*
- Heresiarchini.*
- MAGWENGA**, gen. nov.  
 1. *maculipennis, sp. n.*
- MIOJOPPA** *Cam.*  
 1. *quadrilineola, sp. n.*
- Listrodromini.*
- NEOTYPUS** *Först.*  
 1. *obscurator, sp. n.*
- Platylabini.*
- PLATYLABUS** *Wesm.*  
 1. *atricinctus, sp. n.*  
 2. *mediorufus, sp. n.*  
 3. *ceta Morl.*  
 4. *vallatus Morl.*
- Phæogeenini.*
- BENECLES** *Cam.*  
 1. *dimidiatus, sp. n.*  
 2. *politatus, sp. n.*

## ICHNEUMONIDÆ.

### ICHNEUMONINÆ.

#### JOPPIDES.

#### EPIJOPPA.

Morley, Revis. Ichneum. iv. 1915, p. 49.

Tosquinet in 1896 described two species of the Fabrician genus *Joppa* from Africa; and these, upon examination, I found to differ to such an extent from the more typical Neotropical forms of that genus that I erected a new one for them under the above name, and in it added six other kinds that appeared then to be undescribed. One or two of the characters at that time ascribed to the group must be deleted in order that it may include other species, which, while agreeing in all the more salient features, differ herein: the scutellum, though sufficiently convex, is not invariably subpyramidal nor always deeply punctate, and in one of the following new kinds the peculiarly glabrous and glittering metanotal areola is replaced by one of the more common dull and rectangular form. As a whole, the genus is remarkable in its brilliant metallic coloration and the

rugosity of the surface, often combined with totally nigrescent wings. One specimen I have seen was labelled "Mackayella rufa. Type"; but this appears to be a MS. name. The known species are as follows:—

*Table of Species.*

- |   |                               |
|---|-------------------------------|
| (10) 1. Anterior wings more or less broadly infumate.                       |                               |
| (7) 2. Infumation of wings dense throughout; head red.                      |                               |
| (6) 3. Abdomen fusiform; hypopygium not covering terebral base.             |                               |
| (5) 4. Mesonotum and scutellum red; hind tarsi normal.                      | 1. <i>verecunda</i> Tosq.     |
| (4) 5. Mesonotum red, scutellum blue-black; tarsi incrassate .....          | 2. <i>fumosa</i> Morl.        |
| (3) 6. Abdomen subcylindrical; hypopygium covering terebral base .....      | 3. <i>pygidifer</i> Morl.     |
| (2) 7. Infumation of wings extending from centre only; head not red.        |                               |
| (9) 8. Facial orbits and anus not pale; hind femora bright red .....        | 4. <i>dimidiata</i> Morl.     |
| (8) 9. Facial orbits and anus pale; hind legs entirely black .....          | 5. <i>corrugata</i> Tosq.     |
| (1) 10. Anterior wings hyaline or subhyaline throughout.                    |                               |
| (12) 11. Mesonotum metallic blue; wings subhyaline .....                    | 6. <i>eucalca</i> Morl.       |
| (11) 12. Mesonotum entirely rufescent; wings hyaline.                       |                               |
| (22) 13. Antennæ and legs mainly black; mesonotum dark red; anus white.     |                               |
| (19) 14. Inner orbits more or less broadly, and anterior coxæ, white.       |                               |
| (18) 15. Base of metanotum longitudinally striate on either side.           |                               |
| (17) 16. Scutellum convex, shining, punctate; mesonotum simple .....        | 7. <i>carinifer</i> Morl.     |
| (16) 17. Scutellum pyramidal, dull, rugose; mesonotum bituberculate .....   | 8. <i>triangulifer</i> Morl.  |
| (15) 18. Base of metanotum not at all longitudinally striate.....           | 9. <i>variabilis</i> Morl.    |
| (14) 19. Inner orbits and anterior coxæ immaculate.                         |                               |
| (21) 20. Metanotal areola nitidulous; second segment not pale .....         | 10. <i>pilosa</i> Cam.        |
| (20) 21. Metanotal areola dull; second segment apically white .....         | 11. <i>striatifrons</i> Morl. |
| (18) 22. Antennæ, legs, and mesothorax brick-red; abdomen unicolorous ..... | 12. <i>rubricata</i> Morl.    |

1. *VERECUNDA* Tosq.

This, the type of the genus, was described by Tosquinet (Mém. Soc. Ent. Belg. v. 1896, p. 101) from the Cape; it appears to be not uncommon, and I have already recorded it from Natal, Rhodesia, British East Africa, Uganda, and Nyasaland. Additional material is from Mlanje in Nyasaland at 2300 feet on September 5, 1913, and the valley of the Kola River, near E. Mount, Chipirone, in Portuguese East Africa, at 1500 to 2000 feet on 3rd April, 1913.

## 2. FUMOSA Morl.

This species usually has the pronotum and propleuræ red, but the latter is occasionally, like the prosternum, black-blue; its anal white markings are not infrequently obsolete. It is apparently somewhat local in Central Africa; I have recently seen females taken at Mlanje in Nyasaland on 5th and 25th September and 7th November, 1913, by Neave; and at Salisbury in Mashonaland in September 1913, as well as at 5000 feet there during June 1900, by Marshall.—The var. *apicalis* certainly does not merit specific rank, for I have seen a ♀ of intermediate form between the typical one and this variety, which, while showing the apically clear wings of the latter, bears no white markings at all, and, moreover, has the mesonotum and part of mesopleuræ of the dull ferruginous coloration found in *E. triangulifer*, though the abdomen is of normal breadth and much broader than in that species. It was taken at Mlanje in Nyasaland, between September and February, 1914, by J. B. Davey.

## 3. PYGIDIFER, sp. n.

A stout and somewhat large, bright blue species with the head, pronotum, and propleuræ red; centre of the long flagellum broadly, second segmental plica and the anus from middle of the sixth segment, white; and the mandibles and remainder of flagellum black. Abdomen gravid with the second and third segments longer than broad, and the hypopygium covering base of terebra. Length, 23 mm. ♀ only.—The resemblance of this species to *E. fumosa* is remarkable in the structure and coloration of the head, thorax, legs, and wings, of which the last are somewhat more ample though equally infumate; but the sub-cylindrical abdomen is utterly different in shape and anal structure. The second segment is distinctly and the third slightly longer than broad, with the former deeply emarginate in the centre of its apex and the latter more broadly on either side of its base; apex of second and whole of the following segments glabrous and strongly nitidulous, as also is the convex venter; hypopygium large, apically simply rounded and covering base of the almost concealed terebra. So extraordinary is this structure that a new genus would be requisite for the present species were it not that both oxygygous and amblygygous forms occur in the allied genus *Protichneumon*.—The type was captured at Entebbe in Uganda during August, 1911, by C. C. Gowdey.

## 7. CARINIFER, sp. n.

A dull ferruginous and coarsely sculptured species with the palpi, mandibular base, frontal orbits, flagellar band, anus from fifth segment, ventral plica and more or less of the anterior with apex of the hind coxæ beneath, and inner side of anterior femora, white; mandibular apex, flagellum, apex of prosternum and base of mesosternum, and remainder of anus from base of fourth



segment, hind trochanters with their tarsi and more or less of their tibiæ, black; wings hyaline or slightly flavescent, with stigma black. Length, 12-14 mm. ♀ only.—Known by its distinctive coloration, the but slightly convex and glabrous scutellum which bears a few scattered punctures, the simple mesonotum, by the longitudinal striation at metanotal base, and especially by the shining longitudinal carina on centre of both mesonotum and second segment.—Probably not rare: Mlanje at 2300 feet, on 13th June and 8th October, 1913, in Nyasaland; on the S.E. slopes of Mount Kenya at 6-7000 feet, between 3rd and 12th February, 1911, in British East Africa; at Western Ankole at 4500 to 5000 feet in mid-October, 1911 (*Neave*), and an unlocalised specimen (ex coll. Cameron) from Uganda.

#### 8. TRIANGULIFER, sp. n.

A dull ferruginous and coarsely sculptured species with flagellar band and anus from fifth segment alone, white; mandibular apex, flagellum, whole sternum indefinitely, a discal mark at base of fifth segment and nearly the whole legs, black; wings hyaline with stigma black. Length, 15-17 mm. ♂ ♀.—Much narrower than *E. fumosa* and constantly larger than *E. carinifer*, from the latter of which it differs in little but its less profuse markings, subpyramidal and closely rugose scutellum, and in having the mesonotum slightly elevated tuberculiformly on either side of its apex, the centre of which is triangularly depressed. The typical ♂ has the facial orbits broadly but not the frontal, base of mandibles and of palpi, the anterior coxæ beneath and their femora internally, stramineous; flagellum immaculate black.—All the specimens I have seen were captured by *Neave* at Mlanje in Nyasaland, at about 2300 feet, during the first half of June and early in September, 1913.

#### 10. PILOSA Cam.

*Henicophatnus pilosus* Cam. Ann. S. Afr. Mus. v. 1906, p. 166, ♀; *Epijoppa nigricoxata*, Morl. Rev. Ichn. iv. 1915, p. 53, ♂ ♀.

I have examined Cameron's type, from the district of King William's Town, in the Cape Town Museum.

#### 11. STRIATIFRONS, sp. n.

A short and somewhat stout species with the scape, head, except the black mouth and clypeal apex, pro- and mesothorax with scutellum, crimson; metathorax and basal segment bright blue, remainder of abdomen violaceous with anus, apex of second segment both above and below, and apex of the first below only, pale stramineous; legs entirely and flagellum, except its central stramineous band, black; metathorax coriaceous, with fine carinæ and the areola not more shining. Length, 13 mm. ♀ only.—Similar in size and sculpture to *E. nigricoxata* Morl. (Revis. Ichn. iv. 1915, p. 53), but with the frons, which is utterly

glabrous in *E. verecunda*, stoutly trans-striate throughout, the rugose scutellum but simply convex, the metanotal areola half as long again as broad, rectangular, flat and not shining, and the second segment like the anus apically white.—Entebbe in Uganda during the first half of September, 1911.

#### TROGUS.

Panzer, Krit. Revis. ii. 1806, p. 80; Förster, Verh. pr. Rheinl. xxv. 1868, p. 188.

The *Trogus* group of Joppid genera consists of *Dinotomus*, *Catadelphus*, *Trogus*, and *Automalus*. Dalla Torre's Catalogue of 1902 listed thirty-three species of the main genus, but seven of these belong to *Dinotomus* and one (*teste* Viereck, Proc. U.S. Nation. Mus. xlv. 1913, p. 369) to *Aglaojoppa*, and a ninth proved to be synonymous; but none of them have hitherto been known from Africa. *Automalus*, with its single palæarctic and single Alaskan species, is equally unknown; but the widespread *Dinotomus lapidator* Fab. extends to Algeria from the north. *Catadelphus* was represented by a couple of kinds, both described in 1896, but not since recorded. In 1844, Wesmæl split off *Automalus* from *Trogus* on account of its straight and not centrally angled clypeus, and ten years later he erected *Catadelphus* for the reception of *Ichneumon arrogator*, because its scutellum was simply convex and not pyramidal as in the more typical species. Several of Cameron's Indian Joppides also belong to the present group, but there will at present be need to consider no more than one of them.

#### 1. GRYPUS, sp. n.

An extremely large and stout, blue-black species, with the flagellum except apically and legs except basally, conspicuously pale. Head, thorax, and apical attenuation of flagellum black, with the centrally elevated face and sometimes the temples badius; clypeus apically truncate, labrum strongly exserted. Mesonotum and scutellum very dull and dead black with the base of the former longitudinally impressed, the latter not strongly elevated and laterally carinate only to its centre; metanotum rugose with areola triangular, costulæ strong though irregular, and a basal prominence on either side. Abdomen black or blue-black and smooth with basal segment dull, finely punctate, and centrally bicarinate; terebra stout and hardly exserted. Legs long and stout, bright testaceous with coxæ, trochanters (front ones badius) and onychii alone black. Wings large and ample, strongly and evenly fumate, with blue reflection; discoidal cell narrow and parallel-sided; nervelet small; areolet higher than broad, elongate-triangular and coalescent above. Length, 26 mm.; exp. al. 48 mm. ♀ only.—Larger than *Catadelphus nigrocyanus* with dull mesonotum, no white flagellar band, &c.; most closely allied to the Sonoran *T. atrocerruleus* Cresson.—Gowdey found

the type at Entebbe in Uganda on 17th June, 1913; and Neave took another female, with entirely black (probably owing to grease) abdomen, at Mlanje in Nyasaland, on 8th February, 1913.

CATADELPHUS.

Wesmael, Bull. Acad. Sc. Belg., Annexe, 1854, p. 134.

Not more than half a dozen species are yet described, but these are distributed over southern Europe to the Red Sea, the United States, Central America, and the northern half of Africa.

*Table of African Species.*

(2) 1. Alar areolet pentagonal; legs black, tibiæ and tarsi red .....	1. <i>anceyi</i> Berth.
(1) 2. Alar areolet triangular; hind femora and tibiæ black or red.	
(4) 3. Head quadrate and black; hind femora and tibiæ fulvous .....	2. <i>nigrocyanus</i> Tosq.
(3) 4. Head transverse and red; hind femora and tibiæ black .....	3. <i>rubricaput</i> Morl.

3. RUBRICAPUT, sp. n.

A large, blue-back insect with the anus and centre of flagellum white-marked. Head indefinitely rufescent, small and constricted behind the prominent eyes; face closely punctate, transverse and not higher than the sparsely punctate and apically truncate clypeus; mandibles aciculate-punctate, with their margins smooth and teeth black; frons centrally sulcate and somewhat elevated. Antennæ black and rather strongly inflated beyond the central white band which is broad, but incomplete below. Thorax black and closely punctate; mesonotum, especially laterally, smoother with elongate and subparallel notauli; metanotal carinæ entire, areola narrow and obsoletely discreted from the basal area, apically elevated and emitting costulæ from its centre; petiolar and dentiparal area obliquely substrate; spiracles elongate, apophyses wanting. Scutellum black, convex and smooth, with large and sparse puncturation; its lateral carinæ vallate and extending to near apex. Abdomen deplanate, elongate fusiform and blue with purpurascant reflection; post-petiole shagreened and centrally aciculate, second and third segments very finely punctate and dull with gastrocœli of former deeply impressed, though hardly as broad as the striate and transimpressed intervening space; remainder nitidulous with disc of seventh, and apex of sixth discally, flavous; venter plicate throughout, with terebra slightly exerted and spicula red. Legs slender and black (femora et tibiæ anticorum, articulis 3-5 tarsorum posteriorum desunt). Wings evenly nigrescent throughout, with brilliant blue iridescence; stigma, nervures, and the punctate tegulæ, black; areolet triangular, subcoalescent above; basal nervure continuous through median, nervelet obsolete.

Length, 23 mm. ♀ only.—Very like *Catadelphus nigrocyaneus* Tosq., though with the head not quadrate and entirely red, the antenae white, &c.—The type occurred to Delmé-Radcliffe at Msoji in Uganda during February 1903.

#### ERYTHROJOPPA.

Cameron, Ann. Nat. Hist. ix. 1902, p. 146.

Head with the labrum exerted, and clypeus apically truncate; base of flagellum usually broadly rufescent, its centre in ♀ somewhat strongly dilated. Base of metanotum deeply discreted and vertically elevated; areola small and tuberculiform, not laterally carinate nor depressed; areolæ entire; petiolar area basally carinate, narrow and a little explanate throughout; apophyses wanting. Scutellum pyramidal and in ♂ discally acute; higher than mesonotum and laterally carinate at least basally, with its basal declivity in ♂ subvertical and the apical oblique. Abdomen elongate and usually narrow, about double length of thorax; postpetiole distinct; discal striæ of second segment centrally elevated; venter with segments two to four plicate and the apical obtuse, nearly as long as penultimate. Legs elongate, with tarsi spinulose; hind femora not extending to apex of third segment. Areolet broadly triangular, coalescent above; nervelet often distinct; recurrent nervure centrally, and radius basally, sinuate; basal nervure subcontinuous through median.—The great majority of Peter Cameron's genera are unintelligible without reference to the types; those of *Erythrojoppa* are in the British Museum, and his four Indian species seem to represent the opposite sexes of but two. The following insects are sufficiently homogeneous, though the abdomen is a good deal broader and more deplanate than in those formerly described.

##### 1. RUFIPEDALIS, sp. n.

Dull pale ferruginous, with the abdomen blue and wings evenly nigrescent; base of propleuræ black-marked. Head posteriorly buccate and nearly as broad as the often testaceous eyes; ocellar region circumsulcate; frons concave and radiately striate from scrobes; face closely and confluent punctate, centrally and laterally elevated; clypeus large, distinctly and evenly punctate, laterally elevated, with its apex truncate and stoutly margined. Antennæ subdilated beyond centre and apically attenuate; fourteen basal flagellar joints bright testaceous and remainder black. Thorax robust and stoutly shagreened; notauli short and distinct, sternaui wanting; speculum glabrous and impressed, finely striate below; metathorax evenly coriaceous with complete areolæ and strong carinæ; petiolar area very narrow, trans-striate and extending nearly to base; spiracles linear, apophyses wanting. Scutellum strongly convex and almost pyramidal, discally obtuse, shining and pilose with a few sparse and fine punctures.

Abdomen elongate-fusiform, deplanate, bright metallic blue, with petiole alone (though to a variable extent) rufescent; postpetiole broader than long, finely shagreened with deep apical and lateral punctures; second and third segments closely punctate, former not basally striate, its gastrocoeli large and transverse; venter plicate throughout; hypopygium remote from the subexserted, black terebra. Legs stout and somewhat short, brick-red with only the onyches black; hind coxæ with stout scopulæ. Wings ample and evenly nigrescent, with stigma black; areolet triangular, coalescent above; nervelet obsolete. Length, 20–22 mm. ♀ only.—Apparently common in Central East Africa; many taken at Mlanje during May, June, September, and December, 1913; in the Ruo Valley at 2000 feet in December 1913; and to the S.W. of Lake Chilwa, during January 1914, in Nyasaland; as well as at Masongaleni at 3000 ft. in March 1911, in British East Africa (*Neave*); and near Chirinda Forest in Gaza Land, during March 1907 (*Marshall*).

## 2. NIGRIPEDALIS, sp. n.

Dull, pale ferruginous with the abdomen blue and wings evenly nigrescent; base of mesopleuræ sometimes black-marked. Length, 19–21 mm. ♂ ♀.—This species is certainly distinct from the last, yet the ♀ differs solely in having the hind legs (except usually their trochanters and disc of coxæ) and the intermediate tarsi, black; the flagellum immaculate black and the scutellum pyramidal with its disc acute. The ♂ agrees therewith, but the scutellar disc is subspinately produced.—Entebbe early in September 1911, and on W. shore of the Victoria Nyanza at Buddu at 3700 feet in September 1911, in Uganda; and at Mlanje, during the first half of June 1913, in Nyasaland.

## LEPTOPHATNUS.

Cameron, Ann. S. African Museum, v. 1906, p. 165.

The deeply impressed basal metanotal sulcus places this genus incontrovertibly in the Joppides.

## 1. RUFICEPS Cam.

This striking species was originally described from Cape Colony; but it has a wide range. I have recently examined examples of both sexes (Cameron knew only the ♀, loc. cit., and I brought forward the ♂ in the Annals of the S. Afr. Mus. 1917) from Barberton in the Transvaal, where P. Rendall found it about 1890 (ex coll. Distant); from Mlanje on 25th February, 1913, in Nyasaland; from the Siroko River near the west foot of Mount Elgon at 3600 feet in mid-August, 1911; on the west shore of the Victoria Nyanza at 3700 feet near Buddu during the following September; on the Semliki Plains near the south



shore of Lake Albert at 2200 feet at the end of November, 1911; and between Jinja and Busia in some forest east of Busoga at about 3800 feet at the end of July 1911, in Uganda; as well as on the southern slopes of Mount Elgon at some 5500 feet early in the preceding June (*Neave*), in British East Africa.

#### CTENOCHARES.

Förster, Verh. pr. Rheinl. xxv. 1868, p. 191.

The limits of this genus are, owing to the paucity of its original description, at present somewhat too elastic; but there can, I think, be little doubt that the two new species here brought forward are at least more closely allied therewith than any other. Five kinds belonging here were known to me in 1915; the late V. Szépligeti described another from East Africa (Bull. Mus. Paris, 1907, p. 137) and four more in the Kilimanjaro Expedition, which was published in 1910; I brought forward another from South Africa in 1916 (Ann. S. Afr. Mus. xv. p. 371), and Matsumura has recorded the genus from the Island of Sachalin (Journ. Coll. Sapporo, iv. 1911, p. 94), off the east Asian coast.

##### 1. BLANDITA Tosq.

W. Haygarth has found this species at Durban in Natal.

##### 2. TESTACEA Szépl.

A common species in South Africa, recently captured by Bell Marley at Stella Bush and Howick in Natal, and P. Rendall met with it at Barberton in the Transvaal (in coll. Distant); but rarer farther north, for Neave could find only a single female, with flavidous scutellum and apically black hind femora, on the S.E. slopes of Mount Kenya at 6000-7000 feet during February 1911, in British East Africa.

##### 3. MICROCEPHALA, sp. n.

A clear testaceous insect, with the face and vertical orbits indefinitely stramineous; flagellum and hind tibiæ black with the 8th to 22nd joints of the former, and base of the latter along with their whole tarsi, white. Anterior tarsi nigrescent. Scutellum dull, apically a little constricted, laterally carinate as far as apex; apophyses small, but distinct; gastroceci large and not white. Wings flavescent-hyaline with areolet as broad as high, and not coalescent above; stigma ferruginous. Length, 15 mm. ♀ only.—Very like *C. testacea* but with the head smaller, abdomen stouter and immaculate; antennæ longer and very broadly white-banded, stigma darker and the hind legs quite differently coloured, with only the onychii black. [*Obs.* In this unique I have taken the left hind tarsus as normal; curiously, the right one has the apical two-thirds of its basal joint nigrescent.] The

typical female was taken in Uganda, Southern Toro, Fort Portal Road, at some 4000 feet, towards the end of October 1911.

4. GRACILENTOR, sp. n.

A slender, testaceous species with the head, antennæ, and anus all white-marked black; hind tarsi nigrescent throughout. Head transverse-oval and posteriorly nearly as broad as the not very prominent eyes; flavous with the occiput, vertex, and frons black; frontal orbits to vertex citrinous; occiput abruptly declivous behind eyes and, like the centrally carinate frons, closely punctate; face and clypeus flat, closely and confluent punctate, not discreted and the latter centrally depressed before its apical margin; labrum exserted, mandibles very slender with the teeth piceous. Antennæ filiform and serrate, black with scape and underside of basal half rufescent; flagellar joints 16-23 white; apices desunt. Thorax cylindrical and substramineous with no notauli, apophyses nor areæ; areola represented by two slight longitudinal carinæ. Scutellum dull, but slightly convex, carinate to apex. Abdomen sublinear, much longer than head and thorax; basal segment linear with the obsolete punctate-aciculate postpetiole hardly broader; gastroceli very small; anus black from near base of the fifth segment with the seventh, apex of sixth and the stout valvulæ, white. Legs slender and somewhat elongate. Wings narrow, flavescens-hyaline; stigma luteous; areola pentagonal, broad above; radial cell elongate and narrow. Length, 14-15 mm. ♂ only.—The outline of the abdomen is curiously like that of *Mesoleptus* males.—Found at Howick in Natal about 1904, by J. P. Cregoe.

ISCHNOJOPPA.

Kreichbaumer, Entom. Nachr. xxiv. 1898, p. 82.

This distinct genus needs more revision than I am at present able to effect. It was erected for the reception of a species of Joppid with elongate metapleural spiracles, occurring in both India and Senegal; and I have shown that Chinese, Bornean, and Australian examples are not structurally distinct (Revis. Ichn. iv. 1915, p. 97). Dr. A. Roman finds that *Ischnus melanoptygus* Holmgren and its variety belong here (Entom. Tidskr. xxxi. 1910, p. 172); and it seems nearly certain that the two kinds described under *Ischnus* by Tosquinet in 1896 must also be included, on account of their elongate thoracic spiracles—thus Africa will be left with but a single *Ischnus*-species (*I. trochanteratus* Burgst, Tijds. v. Entom. lv. 1912, p. 267; Tunisian Hym. 1913, p. 15, ♀). Szépligeti brought forward two new species of *Ischnojoppa* from Kilimanjaro in 1910, and two more from Java (Leiden Mus. Notes, xxix. p. 235) in 1908; also, I have added a couple (Ann. S. Afr. Mus. 1916-17), giving the total of nine known kinds, of which seven are African. Some synonymy may be expected.

## I. LUTEATOR Fab.

*Ichneumon luteator* Fabricius, Ent. Syst. Suppl. 1798, p. 222;  
*Bodargus rufus* Cameron, Journ. Str. Br. R. Asiatic Soc. xxvii.  
 1902, p. 53.

In Africa this species is already recorded from Sierra Leone, Congo, Uganda, Nyasaland, British East Africa, German (olim!) East Africa, Rhodesia, and Zululand. Additional material is from Kayena in Cape Colony during October 1916 (L. Péringuey); the east slopes of the Aberdare Mountains at 7000 to 8500 feet in British East Africa at the end of February 1911; and a male (with the vertex black and external radius remarkably straight) from Western Busoga, between Kakindu and the S.E. shore of Lake Kioga at 3500 feet on 22nd of the following August, in Uganda.

Neave also took a couple of males, which I shall here merely term VAR. *unicolor*, nov., though they are pretty certainly of specific rank, for their coloration is testaceous with nothing but flagellum (excepting the normal white band) and mandibular teeth black; further, the abdomen is a little rounded laterally, a good deal less parallel-sided than the typical form, the external radius is nearly straight and the areolet much narrower, nearly coalescent above. These occurred near Kampala on the Kampala-Jinja Road, which is partly forest, during July 1913; and in the Durru Forest, Toro, at the end of October 1911, both at 4000 feet, in Uganda. With them, Neave sent home a single female, which may or may not belong here, for (though the radius is sinuate and abdomen linear) only the mandibular teeth, part of flagellum, and the anus from base of fifth segment, are black. This was found on the S.E. slopes of Mount Kenya early in February 1911, at fully 6000 feet, in British East Africa.

## XANTHOJOPPA.

*Zanthojoppa* Cameron, Ann. Nat. Hist. vii. 1901, p. 378.

This genus of testaceous insects was erected for the reception of a single Khasian species, and its author added five more in the same Magazine during 1903 and 1907, all from eastern India. In 1906 Cameron erected another name for a South African species (*ANISOJOPPA*, Ann. S. Afr. Mus. v. p. 168), which differs so little that I ventured to synonymise them, when bringing forward a new kind (*X. inermis* Morley, *lib. cit.* xv. p. 358) in 1916 from Cape Colony. I now find the genus to be well represented in Central Africa by numerous specimens and a dozen somewhat closely allied species, which may be recognised by:—Head somewhat small, not broader than thorax and never buccate; posteriorly narrower than the internally entire eyes; ocelli always, but their intervening space rarely, black; clypeus neither short nor discreted from the deplanate face, apically subtruncate; cheeks elongate. Antennæ nearly always white-banded

in both sexes, long and slender, of ♂ setaceous and distinctly serrate, of ♀ but slightly dilated centrally and apically acuminate. Notauli wanting, mesonotum always shagreened and dull; metanotum also usually shagreened, areæ wanting with areola at most indicated; costulae and spiracular carina always wanting. Scutellum convex, rarely pyramidal, always laterally and usually also apically carinate. Abdomen elongate and in both sexes subcylindrical, dull and always immaculate testaceous, with hypopygium remote from terebral base. Legs slender and longer than in the Asiatic species, testaceous with the hind ones rarely black- and white-marked; tarsal claws simple. Wings ample and always flavescent, with stigma testaceous.—Superficially this genus is similar, especially in the shape of the capital vertex, to testaceous species of *Hoplismenus*, from which the shagreened exoskeleton, lack of conspicuous apophyses, paucity of metanotal carinæ, and very much duller body sufficiently separate it, though the scutellar structure is alike.

*Table of African Species.*

- |  |                              |
|--|------------------------------|
| (22) 1. Flagellum white-banded in both sexes; metanotal areola obsolete or wanting.                      |                              |
| (21) 2. Head not abruptly declivous posteriorly, temples distinct; tarsi not white.                      |                              |
| (10) 3. Apex of scutellum depressed and not at all carinate.   |                              |
| (5) 4. Areola nearly circular; hind tarsi and tibiæ both black .....                                     | 1. <i>lutea</i> Cam.         |
| (4) 5. Areola rectangular or wanting; at most hind tarsi infusate towards apices.                        |                              |
| (7) 6. Smaller; stramineous; scutellum finely carinate laterally .....                                   | 2. <i>debilitor</i> Morl.    |
| (6) 7. Larger; testaceous; scutellum strongly carinate laterally.  |                              |
| (9) 8. Scutellum apically rounded; postpetiole abruptly explanate .....                                  | 3. <i>rotundator</i> Morl.   |
| (8) 9. Scutellum apically truncate; postpetiole gradually explanate .....                                | 4. <i>truncator</i> Morl.    |
| (3) 10. Apex of scutellum elevated and carinate throughout.  |                              |
| (20) 11. Face regularly punctate; scutellum not longer than basally broad; hind tarsi mainly testaceous. |                              |
| (19) 12. Mesonotum apically simple; postpetiole not stout.   |                              |
| (14) 13. Face distinctly punctate; metanotum dull and not striate; its transcarina wanting .....         | 5. <i>inermis</i> Morl.      |
| (13) 14. Face obsoletely punctate; metanotum striate and not dull, its transcarina distinct.             |                              |
| (18) 15. Frontal orbits not pale; metanotal trans-striation weak.  |                              |
| (17) 16. Postpetiole subcircular and abruptly explanate ...  | 6. <i>explanator</i> Morl.   |
| (16) 17. Postpetiole slender and gradually explanate .....   | 7. <i>gracilator</i> Morl.   |
| (15) 18. Frontal orbits stramineous; metanotum strongly striate .....                                    | 8. <i>striator</i> Morl.     |
| (12) 19. Mesonotum apically bituberculate; postpetiole stout .....                                       | 9. <i>bipapillator</i> Morl. |

- (11) 20. Face irregularly punctate; scutellum longer than basally broad; hind tarsi entirely black ..... 10. *collifer* Morl.  
 (2) 21. Head abruptly declivous behind eyes, temples obsolete; hind tarsi white-banded ..... 11. *cothurnator* Morl.  
 (1) 22. Flagellum not white-banded; metanotal areola well defined.  
 (24) 23. Metanotum laterally black; areola dull; legs all testaceous ..... 12. *geminator* Morl.  
 (23) 24. Metanotum immaculate; areola shining; hind tarsi black ..... 13. *areolator* Morl.

### 1. LUTEA Cam.

Only known from the south of the Continent, in the Cape and Natal; and apparently not extending far north, since I have seen none of the present genus with entirely black hind tibiæ from Rhodesia, &c. Cameron's generic diagnosis is drawn entirely from the ♀, as I have pointed out (Ann. S. Afr. Mus. xvii. 1917, p. 195). I possess the species from Zululand.

### 2. DEBILIOR, sp. n.

A small, pale, debilitating form, differing from the remainder of the genus in its paler coloration, proportionately shorter antennæ of but 8 mm., the peculiarly small head with black ocellar region, the shorter legs and, especially, in the weak lateral scutellar carinæ, which do not extend to the apex. Length, 10 mm. ♂ only.—The unique type was captured at Howick in Natal by J. P. Cregoe, and presented to the British Museum in 1904.

### 3. ROTUNDATOR, sp. n.

This is the first of a series of extremely closely allied species, which I find to differ *inter se* in nothing but the facial puncturation, mesonotal colour and apical contour, mesonotal and scutellar and postpetiolar structure, as well as occasionally the colour of the hind legs.—The present insect has the face obsoletely punctate; mesonotum apically simple, with its sides rarely infuscate; metanotum dull and not striate, its transcarina wanting, and areola both rectangular and obsolete; scutellum longer than basally broad with its apex depressed, rounded, and not carinate; postpetiole laterally curved and abruptly explanate basally; legs testaceous, with the hind tarsi infuscate towards their apices. Length, 12–15 mm. ♂ ♀.—It is recognised by the scutellar and postpetiolar structure, and by having the radial nerve distinctly more reflexed than that of its congeners.—Quite the commonest species of the genus in British East Africa, where S. A. Neave found males between 7000 and 8500 feet on the east slopes of the Aberdare Mountains towards the end of February 1911; at 5000 to 6000 feet on the south slopes of Mount Elgon in the middle of June; and 500 feet higher among some forest on the Nandi Plateau at the end of the preceding May. But the majority are from Uganda, where C. C. Gowdey took it in the Mabira Forest at Chagwe in the middle of July 1911;



Neave in the Durro Forest at Toro, on Mount Kokanjero to the S.W. of Elgon, at Mbarara in southern Toro, the Bugoma Forest at Unyoro, and in northern Buddu at altitudes ranging from 3500 to 4500 feet during July and October.

4. TRUNCATOR, sp. n.

Face obsoletely punctate; mesonotum apically simple; metanotum dull and not striate, with both areola and transcarina wanting; scutellum not longer than basally broad, apically depressed and there abruptly truncate though not carinate; postpetiole slender and gradually dilated; legs testaceous, with hind tarsi infusate towards their apices. Length, 12-14 mm. ♂ ♀. The only species with apex of scutellum truncate.—I have seen but a single pair, of which the male is from the Mabira Forest by Chagwe in July, and the female from Mbarara in southern Toro during October, both at about 3800 feet in Uganda.

5. INERMIS Morl.

Face evenly punctate; mesonotum apically simple; metanotum dull and not striate, areola rectangular and obsolete, transcarina wanting; scutellum not longer than basally broad, apically elevated and carinate throughout; postpetiole slender and gradually dilated; legs testaceous, hind tarsi infusate towards their apices. Length, 12-14 mm. ♂ ♀.—This is the first of a homogeneous group of species with the scutellum itself somewhat flat, though the stout carina, which entirely surrounds its apex, is distinctly elevated and conspicuous; from its allies, the rectangular and dull areola will distinguish it.—It was first described by me in the female sex from Cape Colony, whence it appears to extend as far as Uganda and British East Africa, in both of which its range is co-extensive with that of *X. rotundator*; I have seen ten examples from the Mabira Forest, the Budongo Forest, near Unyoro, Entebbe, Ilala in the Maramas District at 4500 feet, and from the S.E. slopes of Mount Kenya between 6000 and 7000 feet during March, June, July, February, and December, 1911 to 1914.

6. EXPLANATOR, sp. n.

Face obsoletely punctate; mesonotum apically simple; metanotum shining and trans-striate, with both areola and transcarina wanting; scutellum not longer than basally broad, its apex elevated and carinate throughout; postpetiole subcircular and abruptly explanate basally; legs testaceous, with hind tarsi infusate towards their apices. Length, 14 mm. ♂ only.—Distinct in the finely trans-striate metanotum which it shares with the next species, and unique in the abrupt dilation of the postpetiole.—I have only seen the type of this species, which was captured in the Gold Coast by W. P. Lowe and presented to the British Museum in 1911.

## 7. GRACILATOR, sp. n.

Face obsoletely punctate; mesonotum apically simple; metanotum striate and not dull, with areola wanting and transcarina distinct though fine; scutellum not longer than basally broad, apically elevated and carinate throughout; postpetiole slender and very gradually explanate towards its apex; legs testaceous, hind tarsi infusate towards their apices. Length, 12-14 mm. ♂ ♀. Differs from the last species solely in the presence of the apical metanotal transcarina and the very slender postpetiole.—A common species, of which I have seen a dozen examples from the Durro Forest, Mabira Forest, and Buddu on the west shore of the Victoria Nyanza at 3500 to 4500 feet during July, September, and October, in Uganda; and from a few miles east of Mumias in the Maramas District of British East Africa at the latter altitude in the middle of June 1911.

## 8. STRIATOR, sp. n.

Very closely allied to the next species and differing from it only in its simple mesonotal apex, its flavidous frontal orbits, basally rufescent flagellar disc and somewhat shorter wings; from this and the whole remainder of the genus it differs in having the head fully as broad as the thorax and the metanotum strongly trans-striate from its apical transcarina to base. Length, 15 mm. ♀ only.—The type, which alone I have seen, was captured on 17th February, 1911, by W. A. Lamborn, in Lagos.

## 9. BIPAPILLATOR, sp. n.

Face evenly punctate; mesonotum apically elevated on either side into an obtuse tubercle; metanotum shining and trans-striate, areola rectangular and obsolete, transcarina distinct; scutellum not longer than basally broad, apically elevated and carinate throughout; postpetiole stout and gradually dilated; legs testaceous, with hind tarsi nigrescent. Length, 15-17 mm. ♂ only. Instantly known in this genus by the apically bituberculate mesonotum; the large size, dark hind tarsi, and laterally somewhat rounded abdomen are also distinctive.—The largest species of the genus and apparently rare in Uganda, whence I have examined four examples, taken by C. C. Gowdey, all at Chagwe in the Mabira Forest between the 17th-20th July, 1911, and on 3rd July, 1913.

## 10. COLLIFER, sp. nov.

Face irregularly punctate; mesonotum apically simple; metanotum dull and not striate, areola rectangular and obsolete, transcarina wanting; scutellum distinctly a little longer than basally broad, apically elevated and carinate throughout; postpetiole slender and gradually dilated towards apex; legs testaceous, with hind tarsi entirely nigrescent. Length, 15 mm. ♂ ♀.—A very distinct species, differing from all the above in its irregularly

punctate face, subvertical first recurrent nervure, and in having the head behind the eyes constricted in a straight line, which renders the eyes peculiarly prominent.—Apparently rare and confined to Uganda, whence I have seen both sexes taken in the Mabira Forest at 3500 to 3800 feet during July, and the Budongo Forest at 3400 feet during mid-December 1911, by S. A. Neave; and about Entebbe during the middle of March 1914, by C. C. Gowley.

11. COTHURNATOR, sp. n.

A testaceous species, with both antennæ and hind legs white-banded black. Instantly recognised from the remainder of the genus by the pure white third and fourth (and in ♂ fifth) joints of the hind tarsi, which are peculiarly slender; the whole thoracic sculpture, including that of the scutellum, is as in *X. inermis*, but the abdomen is more fusiform and less elongate with its disc, especially apically, more finely punctate and almost nitidulous; the capital structure approaches that of *X. collifer*, though the temples here are very much shorter and the occiput falls away immediately behind the black ocellar region. Length, 12 mm. ♂ ♀.—The distribution seems distinct from that of the foregoing species, for those I have examined are from 4500 to 5000 feet at Western Ankole in mid-October 1911; and the Siroko River, near the west foot of Mount Elgon at 3600 feet, during the preceding August; in Uganda.

12. GEMINATOR, sp. n.

This and the following species are so different from all the above in their deeper ferruginous coloration, black antennæ, shorter and stouter legs, in the rather broader temples, much longer upper mandibular tooth and more robust outline, that they will probably not be found congeneric. *X. geminator* is easily recognised by the longitudinal black mark occupying the confluent external and dentiparal metanotal area; it is similar to the next species but the legs are testaceous throughout, the metanotal transcarina is strong with well-defined, subcircular and dull areola, and no trace of costula. Length, 12-13 mm. ♂ only.—Two males were captured on the N.W. and at Buddu on the W. shores of the Victoria Nyanza at about 3700 feet by Neave, in the middle of September 1911.

13. AREOLATOR, sp. n.

A ferruginous species with the legs neither elongate nor slender, upper mandibular tooth long and transcarina of the immaculate metanotum weak; flagellum entirely black, setigerous and somewhat stout. Differing from the last species in the possession of a well-defined elongate and shining areola with some trace of costula; and from the remainder of the genus in having the extreme base (only) of the hind tibiæ, along with the

whole of their tarsi, dead black. Length, 12–13 mm. ♂ only.—Taken with *X. inermis* and *X. rotundator* in the Mabira and Budongo Forests of Uganda at rather more than 3500 feet during July and December.

#### HOPLISMENUS.

Gravenhorst, Ichn. Europ. ii. 1829, p. 409; Wesmæel, Nouv. Mém. Ac. Brux. 1844, p. 13.

Head slender, not tumidous, somewhat narrowed behind the eyes and towards the mouth; clypeus large, apically truncate; labrum usually very shortly exerted. Antennæ slender, setaceous; of ♂ subseriate, of ♀ a little dilato-explanate, beyond their centre. Thorax subcylindrical, discally gibbulous; mesonotum somewhat convex, with distinct notauli; metathorax with basal sulcus profound, and the apophyses acute; spiracles linear or elongate-oval. Scutellum strongly elevated, abruptly declivous apically. Abdomen subfusiform; hypopygium not covering base of the distinctly a little exerted terebra. Legs somewhat slender. Wings normal; areolet pentagonal.

The bidentate metathorax, exerted terebra, &c., lend members of this genus decided Cryptid facies; but the males bear only the faintest traces, and the females none at all, of sternaui. To *Platylabus* it also bears a superficial resemblance but may be distinguished therefrom, besides the major points above indicated, by the straight and slender hind tibiæ and by the pentagonal areolet. This genus has been placed by all former authors among the Oxypygini, and so recently as March 1914 Herr Pfankuch told me (*in lit.*): “It is my mind that *Hoplismenus* belongs to the Ichneumonides”; but the conformation of the metathorax and scutellum, as also the flagellar structure, ally it with the Trogoideæ of Förster, and it was there treated of in my ‘Ichneumonologia Britannica’ in 1903; among the Oxypygini it were certainly aberrant. Perhaps *Acanthojoppa* Cameron (Entom. xxxv. 1902, p. 109) will prove synonymous, in which case thirteen Asiatic species will be added; but the majority of these have the head a great deal larger and more buccate than any *Hoplismenus* of my acquaintance—though that its author was ignorant of the present genus is proved by his inclusion therein of his *H. ceylonicus* (Spolia Zeylanica, iii. 1905, p. 100), which is a *Eupalannus* and the male of his *Melanichneumon kandiensis* (loc. cit. p. 99).

Africa may be considered the home of *Hoplismenus*, since more kinds are known thence than from the remainder of the globe; these include *Ichneumon dentatus* Smith (Trans. Entom. Soc. London, 1874, p. 391, n. 12), as I am able to state from an examination of the Japanese ♀ type. Kriechbaumer described two species from East Africa in 1894; Tosquinet knew eleven in 1896; Pic found another in 1897; while Szépligeti brought forward no fewer than nineteen additional ones in 1910 from

Kilimanjaro, some of which may belong to *Hoplojoppa*, as was indicated by Dr. Roman (Entom. Tidskr. xxxi. p. 169) in 1910.

### 1. FULVATOR, sp. n.

Pale testaceous with only part of flagellum, apices of mandibles and of hind onyches, black. Head obliquely constricted and narrow behind the very prominent eyes, whence the occiput falls abruptly away; frons obsolete punctate, trans-substriate before the ocelli and centrally sulcate; face and clypeus nearly stramineous, flat and obsolete punctate, with apex of latter truncate and only laterally margined; labrum exerted and cheeks long. Flagellum slender and filiform, black with a central white band, its base rufescent and apex attenuate; of ♂ subserrate, of ♀ distinctly a little dilated, beyond centre. Thorax cylindrical; mesonotum dull and shagreened, with slight notauli; metanotum shining and evenly punctate with complete, but fine, areæ; areola subrectangular, half as long again as broad, extending nearly to base, and emitting conspicuous costulæ from its basal third; spiracular areæ trans-striate; apophyses large, vertical and acuminate. Scutellum much higher than metathorax, its disc closely punctate and not strongly elevated, but both laterally and apically stoutly vallate. Abdomen dull; basal segment very slender with the shining and laterally punctate postpetiole very little explanate; gastrocœli wanting, thyridii obsolete and their intervening space not striate; venter plicate throughout; anus of ♀ acute, with the rufescent terebra distinctly a little exerted. Legs long and slender; calcaria elongate, coxæ not scopulate. Wings flavescens hyaline; stigma and subcosta testaceous, nervures darker; areolet pentagonal, subcoalescent above; nervelet wanting; basal nervure continuous through median. Length, 11–13 mm. ♂ ♀.—Similar to *H. fulgens* Tosq., but with the metanotal areæ distinct and scutellum carinate throughout its apex.—I have seen half a dozen examples of both sexes from the Toro Forest, S.E. of Buddu, at 3800 feet, towards the end of September; from Fort Portal Road, Mbarara, Southern Toro, at about 4000 feet, late in October; from the Durru Forest, Toro, at 4000–4500 feet, a few days later, in Uganda; and from Ilala in the Maramas District, 14 miles east of Mumias at 4500 feet, during the middle of June, in British East Africa.

### 2. CIBDELUS Tosq.

No one has referred to this species since the ♂ was brought forward (Mém. Soc. Entom. Belg. v. 1896, p. 52, n. 3) from Dinko, Scioa, in Abyssinia, where Ragazzi captured it in 1887. The ♀ is a very dull, claret-red coloured insect, with the metathorax entirely, mesopleuræ except above, hind tarsi, prosternum partly, and apical half of flagellum, black; the frontal orbits triangularly, flagellar band, pronotal margin, and anus white. It is at once recognised by the distinctly and evenly punctate



frons; by the shining and very sparsely punctate scutellum, of which the lateral carinæ extend nearly to the apex; the rugulose and white-pilose metanotum with elongate and subhexagonal areola, which in the ♀ is dull and only basally aciculate; and by having the anus from apex of the nigrescent fifth segment clear white. Length, 14 mm.—Captured between Jinja and Busia in some forest to the east of Busoga at 4000 feet, towards the end of July 1911, in Uganda.

#### CORYMBICHNEUMON, g. n.

This new genus differs from *Caelichneumon* Thomson solely in having the scutellum spherical; it stands out from the thorax in the form of a one-third embedded ball, and is not laterally carinate. The only species yet known is remarkable for being of sombre coloration, with both the scutellum and mesonotum conspicuously pale stramineous.

“Monobasic.”

##### 1. CARINIFER, sp. n.

♀. A stout, claret-coloured insect with the mesonotum and scutellum dull pale lemon-yellow. Head dull, closely punctate, sometimes black, and very short behind the eyes; palpi pale flavous, cheeks buccate, clypeus broad and apically truncate, hardly discreted from the deplanate and centrally subelevated face. Antennæ black, filiform and stout, with a 10-jointed central white band; basal flagellar joint nearly as long as the two following, which are apically subexplanate. Thorax stout, very finely punctate, black or with only the frenum and tegulæ black; mesonotum, base of propleuræ above, and callosities below radix pale flavous; metathoracic carinæ strong and entire; areola aciculate, twice as long as broad, extending to base and emitting costulæ slightly beyond its centre; spiracles elongate, apophyses wanting. Scutellum pale flavous, globular and glabrous; post-scutellum small and concolorous. Abdomen stout, subdeplanate and immaculate; basal segment broad and apically explanate with postpetiole punctate-aciculate; second segment deplanate and finely punctate-aciculate, with large gastroceli; second and third ventral segments plicate; anus acute and hypopygium remote from base of the black and distinctly a little exerted terebra. Legs stout and elongate, indefinitely varied with black; hind coxæ finely punctate, simple; their tarsi setiferous beneath, with large and simple claws. Wings evenly infumate-flavescent; stigma and nervures black; areolet no higher than broad, broad above; discoidal cell subparallel above and below.—♂ differs in having all the above red parts black; the pale flagellar band further from the base; the abdomen and scutellum more deplanate; the metanotum laterally punctate, with no costulæ; the front tibiæ anteriorly testaceous and the anterior coxæ,

underside of scape and whole face with mouth-parts, pale flavous. Length, ♂ ♀ 14–18 mm.—A couple of females were captured by Neave in Nyasaland (on the Mlanje Plateau at 6500 feet on November 10th, 1913) and in British East Africa (on the S.E. slopes of Mount Kenya at between 6000 and 7000 feet early in February 1911); the single male, I have reason to believe, is that recorded by the late Colonel C. T. Bingham under the erroneous genus *Lactolus*, in his Report of the Ruwenzori Expedition, No. 13, Hymenoptera (Trans. Zool. Soc. Lond. xix. pt. 2, 1909, p. 179); it was captured at Salt Lake on Ruwenzori at some 7000 to 8000 feet in 1895 by Scott Elliot.

#### AGLAJOJOPPA.

Cameron, Ann. Nat. Hist. vii. 1901, p. 381.

In my Revision of the Ichneumonidæ (iv. 1915, p. 112), this genus is recognised as sufficiently distinct from *Celichneumon*; and Tables are given of the European, Oriental, and American species, though none were known from Africa till 1917, when the Ann. S. Afr. Mus. published one that is not dissimilar to the two following kinds.

##### 1. JOHANNIS Cam.

*Ichneumon johannis* Cameron, Records Albany Museum, i. 1905, p. 245, ♂.

♀. A dull, black species with the mesonotum, scutellum, and sides of thorax sanguineous-red; vertical and a line at the external orbits, flagellar band, postscutellum, apical angles of the three basal and whole of the 6th–7th segments, with inner side of the front tibiæ, white. Head posteriorly short, but nearly as broad as the eyes; frons closely and not finely punctate; face and the undiscreted clypeus closely punctate, apex of latter truncate and, like apex of cheeks, rufescent; labrum exerted and flavidous. Thorax not very dull, very finely punctate, with elongate notauli; metanotum deplanate; areola rectangular, longer than broad, subglabrous, emitting strong costulae from a little beyond its centre; spiracles elongate; spiracular and lateral areæ alone red. Scutellum deplanate, glabrous, sparsely punctate, carinate only at its base, apically broad and truncate. Abdomen subovate and short; basal segment apically badius with postpetiole punctate, its apical angles and those of the two following segments white, with the third except narrowly in its centre apically white throughout, as also is the anus. Legs normal, badius; hind coxæ mutic. Wings hyaline, stigma black, areolet higher than broad and broad above, nervelet nodiform. Length, 13 mm.—Remarkable for the glabrous and rufescent callosity at the juxta-antennal orbits.—This female was captured at Salisbury in Mashonaland by Marshall during March 1900; the male type,

which I have seen, is from the Cape; and W. E. Jones has subsequently found the species at Mfongosi in Zululand.

## 2. GLABRINOTOR, sp. n.

Very like the last species, but with the head posteriorly buccate and fully as broad as the eyes, not at all black but bright red with only the orbits of its utterly glabrous frons and the palpi white. Thorax strongly nitidulous, with a white callosity beneath radices; mesonotum extremely isolatedly punctate with but short notauli; metathorax deplanate with areola sublinear, fully thrice longer than broad, glabrous and emitting weak costulae from beyond its centre; external and lateral areae badius. Scutellum glabrous and glittering with some half dozen punctures, and laterally carinate to its centre. Abdomen fusiform and apically acute; postpetiole badius, sparsely punctate, with no carinae; fourth and following segments nitidulous; apical angles of the second narrowly and whole of the 6th-7th white. Legs normal; anterior femora and tibiae internally whitish; hind coxal scopulae large. Length, 13 mm. ♀ only.—The sublinear metanotal areola is not unlike that of the genus *Cratopoppa* Cam. (Ann. Nat. Hist. vii. 1901, p. 281), in which the scutellar carinae are wanting, the areolet coalescent above, the head large, &c., which characters do not here obtain.—Found by Neave in Nyasaland to the S.W. of Lake Chilwa on 16th January, 1914.

## 3. COMPTULUS Tosq.

*Ichneumon comptulus* Tosquinet, Mém. Soc. Entom. Belg. v. 1896, p. 37, ♀.

♂ ♀. Elongate, punctate, black and somewhat dull. Head quadrate, a little shining, finely punctate; black with all the orbits, except in ♂ the vertical, somewhat broadly white; face broader than long, transversely striate-punctate; clypeus hardly discreted, its apical margin rounded and narrowly, or in ♂ laterally, white. Antennæ short; of ♀ a little dilated centrally, attenuate apically, black, and white-banded; of ♂ also black, serrate, sed fractæ. Thorax rosy, punctate, with sternum black; an elongate line before and a linear callosity below radices, and in ♂ a pronotal mark, white; metathorax convex, strongly punctate, with long griseous pilosity and complete areae, of which the areola is elongate, apically rounded and more finely punctate, of ♂ centrally nigrescent. Scutellum somewhat convex, smooth or in ♂ punctate, laterally carinate nearly to apex, which in ♂ is, along with carinae at base and whole postscutellum, white. Abdomen very closely punctate, longer than head and thorax, of ♀ ovate, of ♂ cylindrical; black with apices of the second and third segments narrowly rufescent and the seventh broadly in its centre, along with the ♂ first apically, and three following on either side, white; terebra a little exerted, ♂ valvulae black

and concealed. Legs short and stout, black with front tibiæ dull stramineous; anterior legs of ♀ obscurely red, of ♂ with coxæ white. Wings subhyaline, with an indefinite cloud across the areolet; stigma, nervures and tegulæ black, radix whitish; areolet irregularly pentagonal, nearly coalescent above; nervelet small; lower basal nervure distinctly postfurcal. Length, ♂ ♀ 15 mm.—It was originally described from Togoland, but two males taken by Neave differ so little that I have ventured to regard them as the opposite sex of Tosquinet's species. They occurred in the valley of the South Rukuru River between June 20th and 27th, 1910, at 3000 feet in Nyasaland.

CÆLICHNEUMON.

I do not think any species have yet been recorded from Africa (excepting my note in Revis. Ichn. iv. 1915, p. 121) under this name; but seven of those described by Berthoumieu (Ann. Soc. Ent. France, 1894) under the genus *Ichneumon* from Algeria seem to belong here, with *C. hæmorrhoidalis* Grav., *C. rudis* Fonsc., and *C. sinister* Wesm., which extend from southern Europe. I find *Platylabus maculiscutis* Cam. and *Ichneumon natalensis* Cam. also belong here; and the dozen species is completed by one brought forward in the Ann. S. Afr. Mus. by me in 1917. Probably some of Tosquinet's and Kreichbaumer's *Ichneumones* will also have to be included, when the types are re-examined. *Holcichneumon* Cameron (Ann. Mus. Transvaal, ii. 1911, p. 175) is synonymous.

*Table of some African Species.*

(8) 1. Black or castaneous, with pale flavous-marked thorax.	
(3) 2. Hind coxæ stoutly scopulate; scutellum glabrous.	1. <i>scopulifer</i> Morl.
(2) 3. Hind coxæ mutic; scutellum distinctly punctate.	
(5) 4. Metanotal areola longer than broad; scrobes tuberculate.....	2. <i>cornellifer</i> Morl.
(4) 5. Metanotal areola not longer than broad; scrobes simple.	
(7) 6. Abdomen and hind legs red; petiolar area black.	3. <i>maculiscutis</i> Cam.
(6) 7. Abdomen mainly and hind legs black; petiolar area pale-marked.....	4. <i>natalensis</i> Cam.
(1) 8. Testaceous; rarely with head and thorax black-marked.	
(12) 9. Mesonotum nitidulous; head and thorax pale stramineous-marked.	
(11) 10. Postpetiole aciculate; gastrocæli large; scutellum white.....	5. <i>sublunifer</i> Morl.
(10) 11. Postpetiole punctate; gastrocæli small; scutellum red.....	6. <i>geminifer</i> Morl.
(9) 12. Mesonotum dull and shagreened; rarely dull flavous-marked.	
(14) 13. Areola narrow and elongate; lower basal nervure postfurcal.....	7. <i>testaceus</i> Cam.

- (13) 14. Areola broad, not elongate; lower basal nervure continuous.
- (20) 15. Second abdominal segment neither striate nor black-banded.
- (17) 16. Scutellum convex and subcircular; areola glabrous 8. *globulifer* Morl.
- (16) 17. Scutellum deplanate and elongate; areola dull and shagreened.
- (19) 18. Second segment transversely impressed; gastrocoeli obsolete ..... 9. *sulcifer* Morl.
- (18) 19. Second segment entire; gastrocoeli large and triangular ..... 10. *thyridifer* Morl.
- (15) 20. Second segment black-banded and strongly striate. 11. *striatifer* Morl.

### 1. SCOPULIFER, sp. n.

A *claret-coloured* and somewhat shining female, with the occiput and frenum indefinitely *black*; all the orbits but the temporal, the mandibular base, sides of clypeus, flagellar band, prothoracic margin, lines before and beneath radix, a central mesonotal mark, two more on mesopleuræ, sides of petiolar area, the scutellum and postscutellum, *stramineous-white*. Head posteriorly short, but as broad as the eyes; frons distinctly and face not closely punctate, the latter transverse, centrally prominent and not discreted from the apically truncate clypeus, which is centrally subdentate. Thorax shining, with distinct notauli; metathorax evenly punctate and not dull; areola obviously longer than broad, parallel-sided, glabrous, apically incomplete and emitting weak costulæ from its centre. Scutellum deplanate, subquadrate, glabrous with a very few fine and scattered punctures, apically truncate and not at all laterally carinate. Abdomen elongate fusiform with apices of segments a little prominent; three basal segments closely punctate and somewhat dull; postpetiole and base of second segment punctate-striate, the former basally bicarinate; gastrocoeli large and deeply impressed; terebra black and a little exerted. Legs indefinitely nigrescent-red with apices of front coxæ broadly, and of the intermediate narrowly, white; hind coxal scopulæ large. Wings hyaline, stigma and tegulæ black, radix white; areolet pentagonal, broad above; nervelet wanting, second recurrent nervure externally produced at its centre. Length, 12 mm. ♀ only.—Captured at Mlanje on 15th August, 1913, in Nyasaland.

### 2. CORNELLIFER, sp. n.

A *black* species with abdomen except petiole, metathorax except petiolar area, mesopleuræ and most of the legs, *red*; all the orbits, cheeks, face except a central didymate mark, clypeus, mandibles, the ♀ flagellar band, prothoracic margin, lines before and beneath anterior radix and behind the posterior, a central mesonotal and two mesopleural marks, scutellum, postscutellum, apical angles of the basal segment minutely, anterior coxæ and trochanters entirely and the hind ones discally, *stramineous*; ♂ also has the basal segment except its angles black, and the



petiolar area stramineous. Remarkably like the last species but differing in its colour, puncturation, especially of the frons and mesonotum and scutellum; in the much stronger costulae, at least basally black first segment with its pale apical angles; in the indication of a nervelet and the simple second recurrent nervure; in its somewhat stout facial tooth between the scrobes; and also in the lack of ♀ coxal scopulae. Length, 14-15 mm. ♂ ♀.—The type is from Blantyre in Nyasaland on 9th June, 1910 (*Dr. J. E. S. Old*); and the male occurred in the Gold Coast about the same time (*W. P. Lowe*).

### 3. MACULISCUTIS Cam.

*Platylabus maculiscutis* Cameron, Ann. S. African Mus. v. 1906, p. 179, ♂; *Ichneumon transvaalensis* Cameron, Ann. Mus. Transvaal, ii. 1911, p. 174, ♀.

An examination of both types convinces me of the above synonymy. The ♂ is from Klerksdorp in November 1890, and the ♀ is labelled "Fontein, 24th April, 1905," both in the Transvaal. A pair of homotypes were taken in South Africa so long ago as 1845, and in the Ruvo Valley, Nyasaland, at 2000 feet on October 25th, 1913.

### 4. NATALENSIS Cam.

*Ichneumon? natalensis* Cameron, Ann. S. African Mus. v. 1906, p. 160, ♂.

The details contained in the above Table are drawn from the type in the British Museum. Another ♂, also labelled "type" by Cameron, is in the S. African Museum; taken at Malvers in Natal by Barker.

### 5. SUBLUNIFER, sp. n.

A small, *fulvous* and not testaceous female with the occiput, vertex, frons, and scrobes to radicle, antennæ except underside of scape and their white band, mesonotum and a mark in each of the external and dentiparal areæ, *black*; remainder of the head, prothorax, elongate callosities before and beneath radices, two discal mesonotal lines, mesopleuræ except speculum, scutellum except lateral carinae, postscutellum, anterior coxæ and trochanters and disc of hind coxæ, *very pale stramineous*. Head transverse, narrower than eyes and posteriorly but slightly emarginate; face closely but weakly, and frons obsolete, punctate; clypeus subdiscreted, apically truncate and centrally a little impressed. Mesonotum very closely punctate and not shagreened, with distinct though fine notauli; metanotum shining, finely punctate-aciculate, with petiolar area long and broad, discreted; areola proportionately short, subsemilunate, broader than long, basally rounded and emitting weak costulae from its centre. Scutellum deplanate, glabrous, laterally carinate to near its truncate apex, before which it is traversed by a few longitudinal striations.

Abdomen immaculate fulvous, fusiform; postpetiole centrally very finely aciculate, laterally punctate; gastrocœli large, deep and transverse, with the narrow intervening space evenly punctate; terebra black and exerted. Legs normal; hind coxæ mutic. Wings hyaline; radix and tegulae stramineous, stigma castaneous; areolet small and pentagonal, nervelet nodiform; basal nervure continuous through the median. Length, 7 mm. ♀ only.—Captured at Northern Buddu at 3800 feet during the middle of September 1911 in Uganda.

6. GEMINIFER, sp. n.

A *rufescent-testaceous* female, very like the last but larger with the mesonotum nitidulous and only sparsely punctate, its disc *red* and sides occasionally *black*; the scutellum is rufescent with its lateral carinae and instriate apex *stramineous*; the metanotal areola, though similarly shaped, is much larger; the abdomen testaceous with postpetiole evenly and distinctly punctate throughout; gastrocœli small and much narrower than their intervening space; terebra basally rufescent; coxæ testaceous, with no stramineous markings. Length, 12–14 mm. ♀ only.—A couple of females (one with the metathorax testaceous and only geminate spots as in the last species; the other with the external and dentiparal areas black and a stramineous pleural streak) at Mlanje in September and October 1913 at 2300 feet in Nyasaland. Also found by W. E. Jones, during March 1917, at Mfongosi in Zululand.

7. TESTACEUS Cam.

*Holcichneumon testaceus* Cameron, Ann. Mus. Transvaal, ii, 1911, p. 175, ♀.

I have examined this unique, bred in the Transvaal, and find it belongs here.

8. GLOBULIFER, sp. n.

Males differing from the next species (*C. sulcifer*) solely in their general *flavous* coloration, lack of metapleural marks; in the subglabrous postpetiole, simple second segment with normal gastrocœli; in the *black* ocellar region, hind tarsi and hind tibiae, with pale calcaria; in the subcircular metanotal areola, the apically coalescent alar areolet; and in the subconically elevated scutellum with long black pilosity. Length, 13 mm. ♂ only.—A couple of males were found at Kibwezi at 3000 feet, at the beginning of April 1911, in British East Africa; and in the Tero Forest, S.E. of Buddu, at 3800 feet, at the end of September 1911, in Uganda.

9. SULCIFER, sp. n.

A very dull, *rufescent-testaceous* species with only the face *subflavidous*; flagellum except the central white band, sides of

mesonotum, a common streak in the external and dentiparal areae, alone *black*; apices of the hind tibiæ and their calcaria nigrescent. Head obsolete behind the eyes; frons and the centrally elevated face hardly punctate; clypeus not discreted, apically truncate; mandibles not apically darker. Mesonotum dull and shagreened, with short notauli; metathorax dull with dentiparal areae transaciculate; areola dull and shagreened, a little longer than broad and rounded at both extremities; costulæ utterly wanting. Scutellum elongate-triangular, deplaneate, shining and sparsely punctate, with no pilosity, laterally margined to near apex. Abdomen elongate-fusiform, unicolorous; basal segment closely and evenly punctate; the second transversely impressed throughout at its basal fourth; gastroceli very small; terebra black and a little exerted. Legs somewhat short and not slender, coxal scopulæ wanting. Wings flavescent-hyaline; radix, tegulæ, and stigma entirely pale testaceous; areolet pentagonal and broad above; nervelet and another in second recurrent nervure, short. Length, 12 mm. ♀ only.—Several females captured in British East Africa (on the Yala River at the southern edge of the Kakunga Forest, at about 5000 feet, towards the end of May 1911) and Uganda (in the Durru Forest, Toro, at 4000–4500 feet, at the end of October 1911; and at Fort Portal Road, Mbarara, in Southern Toro, at some 4000 feet, a day or two earlier). Also taken by G. F. Leigh on 1st March, 1910, at Pinetown in South Africa.

#### 10. THYRIDIFER, sp. n.

A very dull, *rufescent-testaceous* female with only the face and two elongate vittæ on the black mesonotum *subflavidous*. Very similar to the last species, but differing in a few essential details; ocellar region and centre of occiput confluent, mesonotum centrally as well as laterally, scutellum centrally, basal sulcus only of metathorax, with whole of the hind tibiæ and tarsi, *black*; metanotal areola smaller, emitting distinct though weak costulæ; centre of scutellum more closely punctate and subconvex; postpetiole obsoletely punctate-aciculate; gastroceli deeply impressed, somewhat large and as broad as their intervening space; areolet coalescent above, with the second recurrent nervure simple. Length, 14 mm. ♀ only.—Harrar in Abyssinia, during 1912 (Collector ignot.).

#### 11. STRIATIFER, sp. n.

*Rufescent-testaceous* with the face and orbits indefinitely, mesonotal margins and whole hind tarsi, *flavidous*; ocellar region circularly, flagellum except the white band, sides only of mesonotum broadly, whole external areae, spiracles of basal segment, a transfascia before centre of the second segment and at base of the third, *black*. Head posteriorly strongly emarginate, with obsoletely punctate frons; flagellum serrate. Anterior margin

of mesonotum sulcate and strongly elevated; metanotum punctate, with the dentiparal areæ aciculate and areola hexagonally quadrate, emitting strong costulæ from its centre. Scutellum subquadrate, deplanate, elevated from base to the truncate apex, laterally margined throughout, and much higher than metanotum. Abdomen dull and closely punctate with the postpetiole, second segment to near its apex and the third to centre, longitudinally striate; gastrocœli deeply impressed. Areolet triangular, almost broader than high, coalescent above. Length, 11 mm. ♂ only.—Doubtless this species were more correctly placed (on account of its distinctively striate basal segments, the apices of which may be said to be slightly produced laterally) in one of the more typically Joppid genera, though its facies are sufficiently analogous with the present one.—A single male was captured at Chagwe in the Mabira Forest at some 3500 feet during the middle of July 1911, in Uganda.

### Tribe ICHNEUMONIDES.

#### Subtribe Oxygygini.

##### LAGENESTA.

Head large and not strongly constricted posteriorly; occiput margined; labrum strongly prominent, clypeus apically truncate; mandibles bidentate, the upper tooth the longer. Antennæ stout, dilated beyond their centre. Metanotum transversely punctate, with no distinct areæ; petiolar region transversely carinate below its centre. Scutellum deplanate and not laterally carinate. Abdomen neither punctate nor striate, with sides of segments not angularly prominent apically; apical third of petiole broadly dilated; gastrocœli large and stoutly striate, but not deeply impressed; ventral plica strong on second and third, weak on fourth and fifth, segments. Legs stout with tarsal joints spinose, explanate and basally constricted; hind femora extending to fourth segment. Areolet large, pentagonal, and broad above, emitting recurrent nervure from its centre; radial nervure apically reflexed.

The above are the characters assigned to this genus by Cameron, at the time of its erection (*Ann. Nat. Hist.* vii, 1901, p. 376); but they are entirely drawn from the female of one species, of which he knew the male later (*lib. cit.* xi, 1903, p. 185) and the only other published species four years afterwards (*Zeits. Hym.* u. Dipt. v, 1905, p. 86, ♀). These are all from the Hills of northern India, whence I have seen a third kind\*; and have no doubt

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\* *LAGENESTA MONITOR*, sp. n.

A cylindrical, brick-red and cyaneous-black species, with infumate wings. Head cubical and broader than thorax, with the frons to ocelli and mandibular apices alone black; occiput strongly margined; vertex centrally rugose, laterally smooth and behind the eyes strongly elevated into stout and obtuse spines; frons rugose and centrally produced into a stout spine between the scrobes; temples longer than

that the original account of the genus will have to be sufficiently modified to embrace the following additional African kinds, which I have compared with the types of both Cameron's species. He himself, while placing it in the Joppides, was doubtful of its position and remarks that it "does not fit well into any of Kriechbaumer's groups of the Hemijoppinæ"; as a matter of fact, the total lack of basal metanotal sulcus in the genotypical specimen, with its very flat scutellum, places it (I consider, certainly) in the Ichneumonides. Of palaearctic groups, it is most closely allied to *Melanichneumon* and especially *Eupalamus*.

### 1. SINIFER, sp. n.

A large and stout, dull black species, with head and mesonotum shining; wings evenly nigrescent, head entirely red, antennæ and hind tarsi white-banded. Head and scape rich red and glabrous; former strongly buccate behind eyes and nearly as long as broad, posteriorly strongly emarginate, with occiput bordered; scrobes externally produced below; face and clypeus sparsely and coarsely punctate, the latter hardly discreted, apically truncate, laterally rounded and elevated; mandibles stout and sparsely punctate, with teeth black. Antennæ subfiliform; of ♀ very slightly dilated beyond centre, with the 10th to 18th flagellar joints white; of ♂ subserrate, with the 19th to 25th flagellar joints white. Thorax very stout and black with prothorax and in ♀ apices of both scutellum and postscutellum with most of frenum, rufescent; mesonotum glabrous, with a few irregular fine punctures; notauli short and very deeply impressed; metathorax evenly scabriculous throughout, not basally sulcate; of ♂ with petiolar carina alone distinct; of ♀ with areola weak, elongate-oval, longer than broad, apically acuminate, with its carinæ weaker than the centrally emitted costulæ; petiolar area short and not discreted;

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eyes; face quadrate, longitudinally punctate and laterally sulcate before the elevated orbits; clypeus continuous, smoother, apically broadly rounded with its angles strongly elevated and centre minutely bidentate; labrum concealed, cheeks not elongate, lower mandibular tooth slightly the shorter. Antennæ setaceous, not very slender, red with the apical third black and central joints subserrate. Thorax cylindrical, dull and closely punctate, brick-red with all the sutures black; mesopleuræ, dentiparal areæ and the parallel-sided areola all apically produced; metanotum deplanate and double as long as petiolar area; basal area obsolete, costulæ wanting; spiracles linear. Scutellum and postscutellum red, evenly punctate and subdeplanate, with basal fovea and carinæ black. Abdomen parallel-sided and slender, double as long as thorax, obsoletely punctate, subnitidulous and black, with venter concolorous and only the second and third segments strongly plicate; basal segment glabrous and red, with obsolete punctures and a discal longitudinal fovea; thyridii wanting, valvule exerted. Legs elongate and somewhat slender; deep red with hind tibiæ and tarsi alone black; hind femora extending only to apex of second segment. Wings ample and evenly infumate; radix and tegulæ red, stigma and nervures black; areolet exactly pentagonal, broad above, emitting the broadly bifenestrate recurrent nerve from its centre; discoidal cell nearly parallel-sided; nervelet pellucid, lower basal nerve postfurcal; nervellus intercepted at its lower third. Length, 22 mm. ♂ only. Type in Mus. Brit. Assam.



spiracles large and apophyses wanting. Scutellum deplanate, glabrous with a few fine scattered punctures, laterally carinate to near apex. Abdomen dull and elongate-fusiform; basal segment shagreened or in ♂ nearly smooth, with postpetiole strongly explanate and flat; second segment not at all striate, its gastro-cœli deep and a little narrower than the intervening space; plica on second to fourth ventral segments, and disc of ♀ seventh segment, entirely white; terebra subexserted, black. Legs normal; inner side of anterior tibiæ and of front femora, with whole hind tarsi from second segment, white; hind coxæ of ♀ with large, brown scopulæ; claws large. Wings deeply infumate throughout, with cyaneous reflection; areolet triangular and coalescent above; nervelet short; basal nervure continuous through median; first recurrent nervure (of Ich. Brit. i. 1903, p. xxxvi) sinuate at apex of anal nervure. Length, 16–17 mm. ♂ ♀.—The ♂ was found in some forest land between Jinja and Mbwago's, east of Busoga, at about 4000 feet on 28th July, 1911, in Uganda; and females at Mount Mlanje on 29th November, 1912 and again on 4th February, 1913, in Nyasaland. W. E. Jones took another ♀ during March 1917, at Mfongosi in Zululand.

## 2. DUPLICATOR, sp. n.

A large, rich crimson species, with slightly flavescent-hyaline wings; frons triangularly and broadly to below ocelli, the ♀ 10th to 16th flagellar joints, the sixth and seventh segments discally, ventral plica and apices of all the ventral segments, white; mandibular apices, remainder of flagellum and the whole of third to fifth segments, black; hind coxal scopulæ strong, but not large. In sculpture this species differs from the last in little but its rugulose metanotum with discreted petiolar area, much shorter capital vertex, distinctly postfural lower basal nervure and broader areolet which is not laterally coalescent above.—The ♂ also has the whole clypeus, face, centre of external orbits, under-side of scape, pronotal margin, a linear callosity below radix, the postscutellum, apical margins of the second and third segments narrowly, and the three apical joints of its basally black hind tarsi, white. Length, 17 mm. ♂ ♀.—The female is from 2300 feet at Mlanje on 21st October, 1913, in Nyasaland; and the male was found at South Kavirondo at 4200 feet early in May 1911 in the Upper Kunja Valley of British East Africa. In Zululand, Mfongosi, South African Museum.

## 3. TRIPPLICATOR, sp. n.

So similar to *L. duplicator* as to need no detailed description; therefrom I am able to distinguish it only by its rather less clear red coloration, smaller size, more slender and more parallel-sided abdomen, much narrower frontal white markings, the entirely crimson third abdominal segment, and the utterly hyaline wings with their areolet quite coalescent above and basal nervure exactly

continuous through the median. Length, 15-16 mm. ♂ ♀.— Apparently not an uncommon species about Mlanje, where a series was captured during January, February, and March, 1913 and 1914.

#### 4. TRIANGULIFER, sp. n.

A stout, shining, black female with the scutellum and its frenal sides, basal foveæ and centre of mesonotum throughout, mesosternum except centrally at the base, meso- and meta-pleuræ entirely, rosy; both clypeus and frons except longitudinally in their centre, central flagellar band except below, postscutellum, apices of first and sixth segments narrowly, of the second broadly on either side and whole of the seventh with most of venter, anterior coxæ and (excepting a discal streak) trochanters, with the four apical joints of hind tarsi, white; anterior legs mainly pale, hind femora and tibiæ rufescent black. Wings hyaline; hind coxal scopulæ large. Mesonotum glittering and only sparsely punctate; scutellum absolutely glabrous, laterally black carinate to near its truncate apex; metanotum evenly and scabrously punctate with no area but an elongate-triangular (wedge-shaped) portion, gradually contracted apically, glabrous and nitidulous; pleural carina strong. Postpetiole deplanate, explanate and shagreened. Stigma black; areolet coalescent above; lower basal nervure a little postfurcal. Length, 15 mm. ♀ only.—A conspicuous species with, I believe, unique metanotal structure; and obviously belonging to the present genus by the analogy of the puncturation and frontal-colour distribution, besides more pertinent characters, though superficially very like *Melanichneumon*.—It was found in the Durro Forest, Toro, at fully 4000 feet, between 23rd and 29th October, 1911, in Uganda.

#### MELANICHNEUMON.

This genus was divided from the broad division, *Ichneumon* in the Wesmaelian sense, by Prof. Thomson so long ago as 1893 (Opusc. Entom. xviii. p. 1954); but was therein again merged by both Berthoumieu in 1894 and Schmiedeknecht in 1903. Thomson's groups are perfectly natural and are now, all too slowly, coming into general recognition: they were adopted by me in 1903. Consequently, we must bear in mind that in the case of the present and few following genera, other species may already exist under the old broad heading of *Ichneumon*. Smits van Burgst has recorded (Tunisian Hymen. 1913) three European species of *Melanichneumon* extending to North Africa; I have described two new kinds (Ann. S. Afr. Mus. 1916); and Dr. Roman has shown (Zool. Bidr. Upsala, i. 1912, p. 262) that *Ichneumon leucophthalmus*, Thunberg 1822, belongs here and that its male is *I. fimbriator*, Thunb.

## 1. CARINIFER, sp. n.

A stout and closely punctate but not very dull, black female with no pale antennal band; frontal and centre of external orbits, labrum, mandibles and cheeks, basal half of flagellum indefinitely, and the anterior legs except basally, fulvidous; elongate callosities before and beneath radix, a circular central mesonotal mark, whole scutellum and postscutellum, alone stramineous. Head transverse; face and clypeus strongly and evenly punctate, not discreted, the latter slightly produced centrally. Flagellum filiform, neither explanate nor apically attenuate. Notauli short and deep; metathoracic carinæ very strong, with the external dentiparal outwardly curved at its base; areola subaciculate, basally glabrous, rounded and there touching postscutellum, apically subtruncate; spiracles large, apophyses wanting. Scutellum deplanate, glabrous with a few fine scattered punctures, not laterally margined. Abdomen stout and fusiform, immaculate black; basal segment stoutly bicarinate to the closely and evenly punctate postpetiole; gastrocæli large and broader than the shortly striate intervening space; anus nitidulous and obsoletely punctate; the third and obscurely ochraceous second ventral segments plicate, hypopygium remote from terebral base. Legs stout and not short, black with anterior femora, tibiæ and the front tarsi clear red; coxæ not scopulate. Wings hyaline; areolet pentagonal, broad above; internal cubitus straight, with no nervelet; stigma castaneous-black; lower basal nervure distinctly post-furcal. Length, 17 mm. ♀ only.—This species has much the facies of *Hepiopermus leucostigmus*, Grav., with the anus more acute and hypopygium remote.—Harrar in Abyssinia during May 1911 (Collector ignot.).

## 2. MELANOPTERUS, sp. n.

An extremely dull and closely shagreened, black species with only the laterally carinate scutellum nitidulous; flagellar band alone white; wings strongly infumate. Head transverse, constricted behind the eyes; frons evenly, face and the undiscreted clypeus closely punctate, with apex of the latter a little rounded; labrum and palpi obscurely rufescent. Flagellum centrally sub-explanate and apically attenuate. Notauli short and deeply impressed; metanotum with only the petiolar carinæ strong; areola and costulæ obsolete, the former shaped as in the last species, though sculptured as remainder of metanotum; spiracles large, apophyses short and acute. Abdomen fusiform and immaculate; postpetiole punctate-shagreened; gastrocæli wanting, thyridii shining, intervening space not striate; venter plicate throughout. Legs normal; coxæ not scopulate; front tibiæ and tarsi obscurely rufescent. Wings nigrescent throughout; areolet coalescent above; cubital nervure curved, with no nervelet; basal nervure continuous through the median. Length, 14 mm. ♀ only.—The outline is similar to that of *M. leucomelas* Gmel.,

but the head is posteriorly shorter.—The type was captured on Mount Kokanjero to the S.W. of Elgon at 6400 feet on 8th August, 1911, in Uganda.

### 3. GLAUOPTERUS, sp. n.

A somewhat dull and evenly punctate-shagreened, black male with the laterally carinate scutellum more shining; front tibiæ alone internally whitish; wings flavescens. This might well be the alternate sex of the last species, with which the sculpture and colour mainly accord, were it not that the mandibles are rufescent, the metanotal areola and costulae are strong, the apophyses wanting, the abdomen subcyanaceous with gastrocœli deeply impressed though narrower than the substrate intervening space, and the wings deeply clear flavescens with only their apices infumate, the radix and costa, stigma and nervures clear flavous, and the lower basal nervure distinctly postfurcal. Length, 13 mm. ♂ only.—Very similar, superficially, to the males of my *Pimpla glaucoptera* (Revis. Ichn. iii. 1914, p. 68) from Uganda and British E. Africa.—Taken on a plateau of Mount Mlanji at about 6500 feet on 1st May, 1910, in Nyasaland.

### LEPTOTHECUS.

Head with the clypeus apically truncate and labrum prominent; cheeks usually strongly buccate. Antennæ broadly pale-banded and not considerably dilated beyond their centre. Thorax unusually cylindrical; metathorax large and distinctly longer than broad, apically somewhat straight and abruptly declivous; areola elongate-hexagonal, fully twice longer than broad, apically truncate and often basally incomplete; apophyses spinate. Scutellum deplanate. Abdomen slender, longer than head and thorax, apically narrowed from base of fourth segment, with seven visible dorsal segments; petiole slender and elongate, becoming gradually a little explanate towards its apex; pygidium large and two-thirds the length of the penultimate; ventral plica obsolete; terebral valvulae strongly prominent, remote from hypopygium and as long as the white-marked two apical segments. Legs with tarsi spinose; hind legs much the longest, with their tibiæ basally constricted. Wings with areolet pentagonal and constricted above; nervelet distinct.

In his erection of this genus, Cameron (Entomologist, xxxvi. 1903, p. 240) correctly places it in the Oxyptigini, and an examination of the genotype enables me to emend it slightly, as above given. Its author considered that it "may be known by the elongated spined median segment, with its elongated coffin-shaped areola, confluent with the lateral areæ at the base; by the long projecting ovipositor; and by the smooth impunctate abdomen, with its small gastrocœli." It has the facies of *Stenichneumon* Thoms., but the face is not apically constricted, the cheeks are buccate in the typical species and the juxta-coxal is entirely

discreted from the pleural area; the dull and shagreened thorax, of both the known kinds (lib. cit. p. 260 et Zeits. Hym. u. Dipt. v. 1905, p. 142) from northern India, is similar to that of *S. ochropis* Gmel. Though not agreeing in every particular with the diagnosis of *Leptotheucus*, which was based on a single Oriental female, the following kinds are sufficiently homogeneous and differ from *Iloplismenus* so little (besides the lack of basal metanotal sulcus) that I should expect to find it mixed among Szépligeti's conception of that genus.

1. ALUTACEFER, sp. n.

A very dull and alutaceous, black species with sparse pure white, and the thorax with red, markings. Head short and not extending posteriorly behind the eyes; ocelli at vertex of the abrupt occipital declivity; face closely punctate, its centre and the continuous clypeus more coarsely punctate, centre of the latter slightly emarginate with its glabrous lateral angles white and subelevated; palpi, except their apical joint, and the exerted labrum white; frons transversely pure white throughout. Antennæ attenuate, and a little explanate, beyond their central partial white band. Thorax deplanate and rosy-red with prothorax, sides of mesonotum and disc of metanotum black; notauli very small, speculum not shining; areola double as long as broad, basally acuminate but not reaching base of metathorax, with weak costulae; petiolar area short, basal area triangular and hardly carinate; spiracles elongate, apophyses strong and acute. Scutellum red, deplanate, somewhat elongate and laterally strongly carinate to the flavidous apex. Abdomen with apices of the two basal segments, whole of the sixth and seventh, and of the second to fourth ventral ones, white; terebra black and distinctly exerted, with its extreme base covered by hypopygium; first segment evenly punctate and somewhat narrow, thyridii of the second lateral and longitudinally linear. Legs elongate and slender; anterior brick-red with coxæ and trochanters white, their tarsi and the intermediate femora nigrescent; hind legs black, with the second to fifth tarsal joints pure white. Wings hyaline and not broad; tegulae and costa black, stigma ferruginous; areolet as broad as high, laterally coalescent above; discoidal cell narrow and subparallel, with obsolete nervelet; basal nerve subcontinuous.—♂ differs in having part of the facial and external orbits, whole clypens but not centre of the frons, white; the flagellum is setigerous and more elongate; the apical half of the metanotum black-and-red, with white genital valvulae. Length, 11–13 mm. ♂ ♀.—Var. ♂. Head black with the palpi and frontal orbits alone white. Another ♂ has the legs basally nigrescent-red.—Males were captured in the Tero Forest of Uganda during July 1912 (*C. C. Gourdey*). Females at Unyoro about 3400 feet in the Budongo Forest of Uganda in mid-December 1911. Two additional females, also from Uganda, have the centre of scutellum and a dot on the postscutellum



white, the metathorax entirely dull rosy and its areæ obsolete; they occurred at Entebbe during September 1911 and at some 3500 feet in the Mabira Forest, Chagwe, in the middle of the preceding July; and Jones took a ♂ at Mfongosi in Zululand, January, S. African Museum.

## 2. PUNCTIFER, sp. n.

A very dull and closely punctate, black male with sparse white marks, and the thorax mainly red. Extremely similar to the last species but with the mesonotum punctate, in place of alutaceous; the head immaculate; cheeks narrow, clypeus extremely small; palpi and the entire scape alone white; flagellum longer and not setigerous; notauli deeply impressed and elongate; areola small, apophyses obsolete; petiole linear; genital valvule, anterior legs basally and the hind tarsi, black; nervelet wanting. Length, 13 mm. ♂ only.—Found by C. C. Gowdey in the Tero Forest during July 1912, in Uganda.

## 3. MESONOTIFER, sp. n.

A very dull and alutaceous, black species with sparse pure white, and the thorax with red, markings. Head by no means short, though obliquely constricted, behind eyes; cheeks broad; face deplanate, definitely and somewhat confluent punctate, not discreted from the more sparsely punctate and apically truncate clypeus; mandibles slender and black; palpi, clypeus, and the glabrous frons pure white. Antennæ elongate and subexplanate beyond the mainly white central band, apically attenuate, with the eight basal flagellar joints elongate. Thorax rosy-red with prothorax, mesonotum laterally, frenum and disc of metanotum basally from the small but acute apophyses, black; mesonotum apically produced at its centre, notauli short; metanotum closely punctate with areola elongate-triangular, apically attenuate and not extending to base, emitting weak but entire costule from near its base; spiracles elongate. Scutellum convex, shining and glabrous with a few sparse punctures, its sides carinate to near apex which is, like the postscutellum, flavidous. Abdomen elongate with apices of two basal segments and base of the third narrowly, with whole venter, testaceous; seventh and apex of sixth segments white; thyridii of the second small and laterally linear; terebra black and shortly exerted. Legs slender and strongly elongate, nigrescent with apex of hind metatarsus to middle of its onychium white, hind trochanters beneath and apices of their coxæ pale testaceous; anterior legs internally rufescent or testaceous; claws large and simple. Wings hyaline and not broad; tegulae and costa black, stigma ferruginous; areolet no higher than broad, laterally coalescent above, emitting recurrent nervure before its centre; lower basal nervure post-furcal.—♂ differs in its white mandibles, immaculate black clypeus and frons, more slender flagellum; deep and crenulate

notauli, extending to scutellar fovea; sublinear and strongly white-pilose basal segment; large and black genital valvulæ; and in having the hind tarsi white, with only the metatarsal base and very small claws black. Length, 15-17 mm. ♂ ♀.—The typical female was taken at Masaka in Uganda early in November 1913 (*C. C. Gowdey*). Cotypes are from the Tero Forest of Uganda in July 1912, along with a couple of males; another male at Mwera, near Entebbe, on 26th of the next month (*Gowdey*). In the middle of August 1911, on the Siroko River at the west foot of Mount Elgon at an altitude of 3600 feet, also in Uganda.

#### STENICHNEUMON.

Van Burgst has recorded three European species of this Thomsonian genus from northern Africa, and Camerou has attributed to it, with a query, another species from the south of the Continent (Records Albany Mus. i. 1905, p. 229). It would appear uncommon here, and I have seen but one species:—

##### 1. OCHRACEATOR, sp. n.

An extremely dull, pale ochraceous male with indefinite black markings, and the hind legs dark-lined with white tarsi. Head strongly transverse and abruptly declivous immediately behind eyes; occiput and centre of frons nigrescent; face superficially and clypeus very sparsely punctate, the latter not discreted and apically truncate. Flagellum black, with joints 14 to 24 white; reliquæ absent. Thorax dull and alutaceous, higher than broad; metanotum and mesonotum with basal marks, scutellar carinæ and the postscutellum, indefinitely nigrescent; areola obsolete, obliquely and irregularly striate, subhexagonal, emitting obsolete costulæ; petiolar area shagreened, with no carinæ; spiracles elongate, apophyses absent. Scutellum deplanate and punctate, apically truncate, with an elevated carina throughout its margin. Abdomen indefinitely black with apices of the segments narrowly, valvulæ and venter, pale. Legs elongate; hind ones with base of tarsi, inner side of tibiæ and a discal line on femora, subnigrescent; remainder of hind tarsi white. Wings hyaline; tegulæ and radix pale, stigma and nervures black; areolet small and pentagonal, emitting the strongly sinuate recurrent before its centre; nervelet wanting; basal nerve continuous through the median. Length, 11 mm. ♂ only.—Captured in Lagos, Western Nigeria, on 13th February, 1911, by W. A. Lamborn.

#### CRATICHEUMON.

No species of this Thomsonian genus have yet been reported from Africa, apart from such as may be included in the main genus *Ichneumon* by Tosquinet, &c. I consider the following is sufficiently typical to be placed here, though several of its features are abnormal.

## 1. TESTACECOLOR, sp. n.

A stout and dull, clear testaceous female with only the sternum, frons and frontal orbits substramineous; flagellum alone black, white-banded; wings flavescent. At once known in the present genus by its unique coloration; the aciculate-glabrous, and laterally punctate, postpetiole; the small, subquadrate and nearly glabrous metanotal areola, with or without distinct central costulae; by the pale stigma; and by having all the simple coxæ curiously deplanate beneath. Length, 13-14 mm. ♀ only.—The alutaceous thoracic sculpture relates this species to *C. rubricosus* Hlmgr., but the head is very broad and distinctly broader than thorax.—Found at Unyoro in the Budongo Forest in the middle of December at 3400 feet; and at Chagwe in the Mabira Forest in the middle of July at 3500 feet, in Uganda, during 1911.

## BARICHNEUMON.

Berthoumieu has described three species from Algeria; Burgst has discovered that three of the palearctic kinds extend to Tunis; and I have brought forward (Ann. S. Afr. Mus. xv. 1916, p. 364) another from the Cape. This Thomsonian genus will probably be found here over at least the more temperate regions.

## 1. CONCINXATOR, sp. n.

A small and evenly punctate, black male with vertical dots and base of scape beneath obscurely, and all the tibiæ and femora clear, fulvous; wings subinfumate throughout. Head not strongly constricted posteriorly; frons and face closely, the apically a little rounded clypeus very sparsely, punctate. Flagellum short and setaceous, hardly longer than head and thorax, apically pale beneath. Thorax stout, cylindrical, shining and evenly punctate; notauli indicated; metanotal areola triangular, its basal carina convex and apical concave, emitting strong costulae a little beyond its centre; petiolar area elongate, discreted with very strong lateral carinae; spiracles small and elongate, apophyses wanting. Scutellum punctate and shining, only basally carinate. Abdomen cylindrical and dull; basal segment stout, gradually explanate, with the postpetiole subbicarinatè and evenly punctate; gastrocœli small and superficial, intervening space not striate; ventral segments two to four plicate, valvulae black and not exerted. Legs neither short nor slender; all the femora and tibiæ fulvous, with the front tibiæ internally paler. Wings somewhat small, evenly brunneous throughout; stigma black; areolet obliquely pentagonal, broad above, emitting the sinuate recurrent nervure beyond its centre; lower basal postfural. Length, 8 mm. ♂ only.—The sculpture and disposition of the wing nervures are very like *B. gemellus* Grav., though the whole puncturation is less close and more distinct.—Two or three males were found in Abyssinia, probably about Harrar, in 1910 (Collector ignot.).

## 2. INCUBITOR Linn.

A female of this species, differing from the somewhat uncommon palaearctic form with entirely black legs only in its lack of white flagellar and anal markings, was discovered on the western slopes of Mount Kenya, on the Meru-Nyeri Road at between six and eight and a half thousand feet, in the middle of February 1911, in British East Africa.

## 3. PLANINOTUM, sp. n.

A closely punctate, black female with flavous markings and the abdomen mainly red. Head constricted and narrow behind eyes; mandibles, palpi, labrum, lateral angles of the apically truncate clypeus, and frontal orbits nearly to the concolorous vertical dot, pale stramineous; frons sparsely and finely punctate; face evenly punctate, centrally elevated and apically discreted. Antennæ centrally white-banded and apically attenuate. Thorax very closely punctate, dull with pronotum, callosity below and an elongate one before radix, flavous; notauli fine; metathorax shagreened, with the broad and undiscreted petiolar area apically transaccutate; areola quadrate, parallel-sided, deplanate and extending to base of metanotum, with weak lateral carinae and no costulae; spiracles linear, apophyses obsolete. Scutellum nitidulous, very finely punctate, not margined, clear flavous with its basal third and the postscutellum fulvous. Abdomen elongate and parallel-sided, with anus from base of sixth segment more or less definitely black; postpetiole deplanate, finely and irregularly punctate; gastrocœli transverse and deeply impressed, their intervening space much narrower than central area of postpetiole; terebra black and a little exerted. Legs normal, with hind tarsi slender; indefinitely nigrescent red, with hind coxæ and femora darker; hind coxæ finely punctate beneath, with very large scopulae. Wings hyaline; radix and tegulae fulvous, stigma red; areolet pentagonal, as broad as high and somewhat small. Length, 9 mm. ♀ only.—From all species known to me of this genus, to which the pale vertical dots and punctate petiole show that it belongs, it differs in its nearly smooth metanotum with the parallel-sided areola extending to base; the central abdominal segments, also, are more deplanate than is usually the case.—A couple of females were received from Algeria about 1849, I believe from Francis Walker.

## 4. SEXALBATUS Wesm.

A single typical male of this palaearctic species was captured in Abyssinia, probably about Harrar, in 1910.

## 5. FOSSIFER, sp. n.

A closely punctate, black male with profuse stramineous-white markings, and the abdomen and legs mainly red. Head trans-

verse, short and not strongly constricted posteriorly; stramineous with mandibular apices, a dot at the genal orbits, whole occiput with ocellar region and centre of frons to scrobes, black; frons subglabrous; face and clypeus distinctly punctate, with the centre of latter very conspicuously impressed longitudinally at its apex. Antennæ normal, immaculate. Thorax black with prothoracic margin, prosternum, linear callosities before and beneath radices, a broad mesopleural streak, two discal mesonotal vittæ and apex of metathorax on either side, white; notauli short and deeply impressed; areola cordiform, subglabrous, a little longer than broad, not extending to base, and emitting strong costulæ; spiracles linear, apophyses wanting. Scutellum convex, margined to its centre; stramineous, with base of its carinæ and two dots on postscutellum concolorous. Abdomen red with the basal segment alone black; postpetiole convex, evenly and closely punctate, with no carinæ; gastrocœli deeply impressed, large and broader than the striate intervening space; valvulæ fulvous. Legs normal; dull red; tarsi, hind tibiæ and most of their coxæ black; anterior and disc of hind coxæ whitish; front tibiæ internally pale. Wings normal; tegulæ and stigma black, radix whitish; areolet slightly higher than broad, coalescent above. Length, 11 mm. ♂ only.—At once known by the definite thoracic white markings and by the clypeal fossa.—A couple of males from Uganda: one at Chagwe in the Mabira Forest at some 3500 feet in the middle of July 1911; and the other between the Seziwa River and Kampala at the same altitude towards the end of the following month.

#### 6. MUNDATUS Tosq.

This is probably not an uncommon species in Central East Africa, since I have seen several males, but nothing that I can assign as its female. The peculiarly elongate form and dull red coloration are distinctive; and the punctate postpetiole assigns it to the present genus, though Tosquet (Mém. Soc. Entom. Belg. v. 1896, p. 31) described the male under *Ichneumon*, in its Wesmaelian sense. The extent of black markings is variable: the thorax is usually black with a flavous pronotal callosity, and the mesonotum, excepting a discal vitta, red; sometimes the flavous is become red; at others the black central mesonotal line is lacking, or the spiracular and dentiparal areæ are also red, with or without the propleuræ. Also all the coxæ and trochanters, or as in the type only the anterior coxæ above, are black.—The specimens from which these details are drawn come from Higo Samula in Abyssinia on 30th October, 1911 (*R. J. Stordy*); Abyssinia, probably about Harrar, in 1910 (Collector ignot.); and one, which considerably extends its known range, from the valley of the Rukuru River between 20th and 27th June, 1910, at 3000 feet, in Nyasaland. Another male, differing solely in its black legs with only the anterior tarsi red and inner side of front tibiæ flavous, was found on the west slopes of Mount Kenya, on



the Meru-Nyeri Road at some 7000 feet, about 20th February, 1911.

#### ICHNEUMON.

This genus is nowadays used in the sense to which it was restricted by Professor Thomson of Lund (Opusc. Entom., 1893, p. 1911), though the difficult task of assigning to their correct subgenera the very numerous species, that were therein included in the earlier times and have been therein placed by careless authors during the recent ones, is by no means yet completed; and this is as true of Africa as elsewhere, being especially applicable to Tosquinet's descriptions of 1896. In fact, of the fifty kinds still placed here from Africa, such things as *I. intratorius* of Fabricius (1793), *I. apicalis* of Wiedeman (1824), *I. desjardinii* of Brullé (1846), and *I. frontalis* of Guérin (1846; nec Fourcroy in 1785) are unrecognizable without reference to the scattered and probably lost types. Hence some synonymy is sure to arise. My own experience goes to show that this genus is but poorly represented in the Ethiopian fauna, and that such forms as occur have usually extended from the somewhat broad distribution of palæartic kinds throughout the southern Mediterranean shores.

#### 1. RUBRONATUS Cam.

The male only of this conspicuous insect was brought forward by Cameron (Records of the Albany Museum, i. 1904, p. 141) from the Cape, whence I have not received it; nor, curiously enough, from any central part of the Continent. But about Harrar in Abyssinia it must be of comparatively frequent occurrence, for fully half a dozen were comprised in a small collection there made in 1910; and these males show considerable constancy of markings in respect to the flavous and black, though the peculiarly characteristic brick-red of the basal moiety of the second segment may be half obscured by black as in the southern type, black only narrowly at the sides or so broadly suffused with that colour that the rufescence is traceable only between the deeply impressed gastrocœli. This male is obviously allied to the abundant palæartic *I. sarcitorius* Linn., which extends to Algeria; and, judging by analogy, I here assign to it the following female:—

A very stout and closely punctate, dark crimson female, with ovate abdomen; central flagellar band, whole scutellum, apices of second and third, and disc of the sixth segments, pale flavous; remainder of abdomen from base of third segment, small apical marks before its pale band on disc and sides or else the whole centre of second segment, flagellar apices, sometimes disc of hind coxæ, and the whole thorax except mesonotum or also except metanotum indefinitely, black. Mesonotum with a very faintly nigrescent longitudinal central vitta; stigma fulvous. Exactly resembling *I. sarcitorius* in both structure and sculpture; identical

in those of the metanotum, postpetiole, coxal scopulæ and basal nervure; though a little stouter. Length, ♂ ♀, 11-12 mm.—Of this distinct female I have seen two examples, differing only in the extent of rufescent coloration on the metanotum and second segment, which were respectively captured so far apart as Alaba in Abyssinia on 15th November, 1911, by R. J. Stordy, and Durban in Natal during 1904, by J. P. Cregoe.

#### CHASMIAS.

The right of this genus to distinction from *Ichneumon* has constantly been a moot point since its erection under the name (*Chasmodes* by Wesmæl in 1844 (*nec* Cuvier, 1836); it was re-named by Ashmead in 1900. We must, I think, look to the Ethiopian fauna to supply us with a good basis of generic distinction, since less than half a dozen species have yet been described altogether; one of these is from Abyssinia and was discovered by Tosquinet.

##### 1. GLAUOPTERUS Morl.

This was recently brought forward (*Ann. S. African Mus.* xv. 1916, p. 365) by me from the Cape; but a second female, differing in nothing but its black mesonotum, anus and hind tibiae, was captured in Abyssinia, probably about Harrar, during 1910.

##### 2. RUFICAUDATOR, sp. n.

A very strongly elongate and somewhat dull species, with the head except mouth and top of face, base of antennæ beneath, anus from apex of fourth segment and anterior tibiæ, brick-red; centre of flagellum very broadly but indefinitely flavous; scutellum alone stramineous. Head posteriorly as broad as the eyes, with cheeks and temples buccate; frons, the centrally elevated face, and the clypeus evenly and distinctly punctate, apex of the last glabrous and sinuate with its centre conspicuously produced. Thorax cylindrical, with superficial notauli; metathorax closely and evenly punctate with fine carinæ; areola subhexagonal, apically a little constricted, extending to base and emitting costulæ from its centre; spiracles elongate, apophyses wanting. Scutellum subconvex, glabrous, with some punctures. Abdomen linear, narrower than thorax and just double length of head and thorax, dull and very closely punctate, with the postpetiole evenly punctate on either side of its glabrous and nitidulous centre; second segment fully twice as long as broad, with the deeply impressed gastrocœli narrower than their intervening space; fourth and fifth segments discally quadrate; valvulæ red and hardly exerted. Legs not long, tarsi slender; front femora internally and their tarsi also rufescent. Wings subhyaline, with stigma black; areolet as broad as high, not laterally coalescent above; nervelet elongate but evanescent. Length, 18 mm.

♂ only.—The type occurred by the Yala River on the southern edge of the Kakumba Forest at between 4800 and 5300 feet towards the end of May 1911, in British East Africa.

### Subtribe *Amblypygini*.

#### AMBLYTELES.

This genus, as established by Wesmael (Nouv. Mém. Acad. Bruxelles, 1844, p. 111) has, like his *Ichneumon*, been subdivided by Thomson into three genera, of which the typical one is well represented by thirty-seven African species, all from the north or south of the Continent except three; Tosquinet had one from Sierra Leone; Szépligeti described one (Bull. Mus. Paris, 1907, p. 137) from East Africa; and another, captured by the Kili-manjaro Expedition, in 1910, for the synonymy of which cf. Roman (Entom. Tidskr. xxxi. 1910, p. 144). *Setanta* Cameron (Ann. Nat. Hist. vii. 1901, p. 483) is already known to be identical with the present genus.

#### 1. *SPILOPTERUS*, sp. n.

A stout, ferruginous species with the metathorax, mesopleuræ and most of abdomen, black; apex of wings broadly nigrescent. Head posteriorly buccate and broader than the eyes; mandibles stout, punctate, and apically black; cheeks buccate; face and clypeus rugulose punctate, obsoletely discreted, with the latter laterally elevated and apically truncate; vertex trans-striate and not broad. Antennæ attenuate and hardly darker apically, of ♀ slightly explanate beyond their centre. Thorax dull and coarsely punctate; frenum black; notauli apical and small; pleuræ finely punctate, with the speculum dull; metanotum evenly granulose throughout, with no carinæ, its basal sulcus somewhat deeply impressed, spiracles elongate, and apophyses wanting. Scutellum convex, closely and deeply punctate, laterally strongly carinate to near apex. Abdomen elongate-fusiform and finely punctate with the fourth and following, usually all the dorsal, segments black; postpetiole and anus from base of third segment shagreened, or the former in ♂ shining and smoother; gastro-cœli very small; hypopygium extending to apex, terebra very slightly exerted. Legs clear red with the posterior coxæ and centre of their femora more or less broadly black; tarsi and hind tibiæ stout. Wings flavescent with whole apices of the front ones abruptly nigrescent from the recurrent nervure and areolet, which is subcoalescent above; tegulæ and the basally paler stigma fulvous. Length, 12-14 mm. ♂ ♀.—Found in scattered forest on the Nandi Plateau at about 6000 feet during early June 1911; and on the southern foot and slopes of Mount Elgon at 5100-5800 feet between the 8th and 13th of the same month, in British East Africa.

## 2. AURICOMUS, sp. n.

♂. A handsome, aureo-flavous species with profuse black markings and evenly nigrescent wings. Head short, hardly narrower than the eyes, with the posterior margin subtruncate; face finely, with its centre and clypeus much more coarsely punctate; mandibles narrow and punctate, labrum exerted, clypeus centrally a little produced; frons longitudinally in the centre and back of head, below the occipital margin, black. Antennæ hardly longer than half the body, stout and attenuate throughout, immaculate orange with the joints short. Thorax closely and finely punctate, with all the pleuræ more sparsely punctate and shining; whole frenum, basal scutellar fovea broadly, propleuræ both above and below the collar, mesopleuræ and sternum except the radical callosities, an apical line and small mark above coxæ, metathoracic base and petiolar area, black; mesonotum indefinitely nigrescent and discally pubescent, notauli apical; metanotal carinæ entire; areola square, glabrous, glittering and spinately produced basally in the centre; spiracles elongate and apophyses wanting. Scutellum a little convex, shining, finely and not closely punctate. Abdomen dull and very closely punctate with golden pilosity, stronger on the fifth and following segments; second to fifth segments except their apical margin regularly and sides irregularly, and whole venter, black; first segment punctate and, except apically, indefinitely rufescent; gastroceci shining, narrower than the simple intervening space; second and third ventral segments plicate, the last not centrally produced. Legs somewhat stout and not elongate, with only the lower side of hind coxæ and trochanters partly black; claws simple. Wings evenly infumate throughout; tegulæ and radix flavous, stigma and costa black; areolet broad above and a little produced apically below; radius apically reflexed.—The ♀ differs very slightly in having the sternum, pleuræ, and metathorax immaculate black, as also are the posterior coxæ; but the frons and occiput are pale; coxæ not scopulate. Length, 14 mm. ♂ ♀.—The typical male was found at Nairobi during June or July, 1912, by Dr. A. D. Milne; the only female I have seen is labelled with the MS. and most inappropriate name "*fulgidipennis*, Cam., Type. Uganda," and lacks abdomen.

## 3. FULVOCAUDATUS Tosq.

This male has not been mentioned since first described from Hadda Galla' in Abyssinia by Tosquinet (Mém. Soc. Entom. Belg. v. 1896, p. 76). It is an extremely conspicuous species in its black wings and body with orange antennæ, red head and anus, and fulvous legs. The present example of but 11 mm. is smaller than the type and has the areola as long as broad, distinctly hexagonal, and not "à bords arrondis"; it is from Peter Cameron's collection, simply labelled "Erythria."

4. *NEGATORIUS* Fab.

This is a very variable species, first described by Fabricius (*Entom. Syst.* ii. 1798, p. 141), and the subtropical specimens I have seen differ somewhat from the common European form, which has not been recorded from Africa. The female type of *Eristicus iridipennis* Cameron (*Records of the Albany Museum*, i. 1904, p. 142), from the Cape, exactly agrees with the type, which I have examined in the Calcutta Museum, of *Pompilus divisus* Smith (2nd Yarkand Mission, *Hym.* 1878, p. 14; *Waterhouse, Aid to Ident. Ins.* ii. 1885, pl. 169. fig. 2, ♀), from Kashmir, and I have seen it also from Nepal. These I have no hesitation in synonymising with *A. negatorius* var. *nubilus* Berthoumieu (*Ann. Soc. Entom. France*, 1895, p. 640); Smith's name has priority for the varietal form.

5. *MACULICAUDIS* Cam.

The male type of *Pseudamblyteles maculicaudis* Cameron (*Ann. S. Afr. Mus.* v. 1906, p. 164) could be placed with equal propriety in *Ichneumon*, *s.str.*, or the present genus, from which *Pseudamblyteles* Ashmead, differs solely in the instable character of lacking apophyses. It is not a good genus and must be abandoned. The type, recorded from Cape Colony, is labelled "Kimberley."

6. *TESTACEATOR*, sp. n.

A clear testaceous and closely punctate species with only the central flagellar band and all the orbits white, base of flagellum red, its apex and the tarsal pulvilli alone black. Head posteriorly as broad as eyes, with both the temples and cheeks buccate; frons and face closely and evenly punctate; clypeus glabrous with a few large punctures, not discreted but foveate on either side before its lateral margin, apically a little produced obtusely on either side of centre; mandibles bidentate, subparallel-sided, apically rufescent. Antennæ filiform and not apically attenuate, with basal flagellar joints elongate. Thorax stout, dull and very closely punctate; notauli obsolete, speculum convex and shining; metanotal carinæ fine and distinct; areola hexagonal, hardly longer than broad, not quite extending to base and emitting costulae before its centre; petiolar area discreted, centrally parallel-sided and there transaciculate; spiracles linear and apophyses obsolete, obtuse. Scutellum deplanate, glabrous, and nitidulous with half a dozen deep punctures, laterally carinate to its centre. Abdomen sublinear and immaculate, with anus nitidulous; basal segment slender, centrally punctate, postpetiole very finely aciculate throughout with no carinæ; gastrocelli superficial and striate, their intervening space aciculate; venter convex throughout, terebra black and hardly exerted. Legs normal, immaculate; hind coxæ simple. Wings silaceous-hyaline; radix and tegulae testaceous, costa and nervures black, stigma luteous; areolet pentagonal and somewhat small, laterally



constricted but not coalescent above; radius not apically curved, nervelet obsolete, basal nervure continuous through the median. Length, 12 mm. ♀ only.—The abdominal structure is similar to that of *A. subsericans* Grav. Found at Salisbury in Mashonaland by G. A. K. Marshall during March 1900.

#### SPILICHNEUMON.

No African species have yet been assigned to this genus, which was divided from *Amblyteles* by Prof. Thomson (Opusc. Entom. xix. 1894, p. 2087); and it has been but little employed by systematists. The range, however, is much broader than has hitherto been suspected; and I find that Cameron's two genera, *Haliphera* (Entomologist, 1903, p. 237) and *Eutanyacra* (Trans. Ent. Soc. Lond. 1903, p. 227) represent respectively the females and males thereof. Further, Cameron mistook *Barichneumon*, among the Oxytygini, for the present genus.

##### 1. DIDYMATUS, sp. n.

An elongate black species with profuse whitish markings; the legs and abdomen, except its base, red with the segmental angles whitish. Head transverse and obsolete behind the eyes; outer orbits broadly, inner to vertex, whole face, and mouth-parts except apices of the slender mandibles, flavescens white; clypeus broad, apically truncate, and not basally discreted from the evenly punctate face; occiput shining, pilose and finely punctate. Antennæ half length of body, attenuate, with the joints short and subserrate; scape white beneath. Thorax shining and finely punctate, discally deplanate; notauli elongate but superficial; pronotal margin, prosternum, broad callosities before radices and a line below them, a mesosternal spot and a transverse mark below hind radices, a discal mesonotal spot and the whole dentiparal area, white; mesopleuræ and a mark above the metapleuræ red; upper metanotal carinæ strong, areola glabrous and subquadrate with its base centrally elevated and extending to postscutellum; spiracles elongate, apophyses wanting. Scutellum and the glabrous postscutellum flavous; former deplanate, glabrous, sparsely and evenly punctate, not margined. Abdomen deplanate, subparallel-sided, somewhat dark red with sides of the four basal segments apically, and apices of the basal or two basal narrowly, whitish; first segment black with the postpetiole evenly and somewhat diffusely punctate; gastrocœli narrower than the intervening space; hypopygium spinately produced; terebra concealed. Legs somewhat slender; anterior coxæ, and marks above and below the black hind ones, whitish; hind tarsi infuscate. Wings hyaline; tegulæ white, costa black, stigma ferruginous; areolet higher than broad, not coalescent above.—The ♂ has the antennæ longer and more strongly serrate; basal segment red before its pale apex; mesopleuræ, metapleural mark, and apical margins of the four basal segments,

flavescent. Length, 13–15 mm. ♂ ♀.—The type was captured at Mlanje on 4th October, 1913, at 2300 feet, in Nyasaland; and the audrotype between Jinja and Busia in some forest land east of Busoga on 28th July, 1911, at 4000 feet, in Uganda.

## 2. UNIPUNCTOR, sp. n.

An elongate black male with profuse whitish markings; the legs and abdomen, except anus, red with segmental apices whitish. Extremely like *S. didymatus* but with the mandibles and palpi black, the frontal and external orbits immaculate; basal two-thirds of flagellum red, pleuræ and mesonotum immaculate; areola finely sculptured and apically stramineous; scutellum convex; basal segment red, the fifth and sixth black, with only their apex whitish, and the fourth basally nigrescent; tegulæ, coxæ and trochanters entirely black; areolet broader and very broad above. Length, 13 mm. ♂ only.—The type was captured at Harrar in Abyssinia, 1912.

## 3. TRIANGULATOR, sp. n.

A black male with profuse whitish markings; the legs and abdomen red, with segmental apices whitish. Very similar to the last species and differing from *S. didymatus* in the convex scutellum, sculptured metanotal areola, black external orbits and mouth-parts, and in the rufescent flagellum. It is distinct in having the areola remote from metanotal base, and its apex flavous, which colour extends thence obliquely to the obsolete apophyses; the abdomen is not black-marked, and the stigma is black. Length, 9 mm. ♂ only.—The type is from Queenstown in Cape Colony, where it was captured during 1907 by E. T. Wells.

## XENOJOPPA.

The discovery of this genus in Africa is as interesting as that of *Lagenesta* and other genera that have hitherto been regarded as purely Oriental; it is even more so, on account of its peculiar specialization, for it is the only one known to me among the Ichneumonides that shares coxal dentition with the Phæogenides. *Xenojoppa* was published by Cameron in 1902 (*Entomologist*, xxxv. p. 179) upon finding that his original name for the genus, *Magrettia* (*Ann. Nat. Hist.* vii. 1901, p. 480) had already been employed by Brunner v. Wattenwyl in the latter's 'Monographie der Stenopelmatiden und Gryllacriden' (*Verh. z.-b. Ges. Wien*, xxxviii. 1888, p. 285). Two species were brought forward by its author (*ib. cit.*, p. 481 et xii. 1903, p. 569); and I have seen a third\*; all from Northern India. The following considerably extends its southern range.

### \* XENOJOPPA KALI, sp. nov.

A shining and metallic, particoloured species. Head baccate and black, with the inner ocular orbits flavous and most of the mouth rufescent; clypeus not discreted. Antennæ setaceous, not elongate, with the seven central flagellar joints white.

## 1. FOSSIFRONS, sp. n.

A stout, tricoloured female: head and thorax pale stramineous with occiput through ocellar region and centre of frons to scrobes, antennæ (except a discal central seven-jointed white band), and disc of thorax mainly, black; abdomen and legs clear red with only apices of sixth and seventh segments subnigrescent before the narrowly white anus, and tarsi discally infusate. Head posteriorly as broad as eyes, with both temples and cheeks buccate; frons depressed throughout, glabrous and glittering, slightly transaciculate below ocelli, with the elevated orbits incurved below ocelli; face and clypeus transverse, not discreted, distinctly and in centre rugosely punctate, with apex of the latter centrally a little concave, not dentate; labrum exerted. Thorax with pleuræ and sternum flavidous: mesonotum shining, sparsely and coarsely punctate, black with elevated callosities before and below radices and two discal vittæ flavous; notauli elongate, fine and subparallel; metathorax dull and punctate-aciculate, with petiolar area strongly concave, centrally stramineous and very long; areola proportionately short, transverse, extending to base, apically concave and laterally rounded, emitting no costulæ; spiracles elongate, dentiparal areæ produced but with no apophyses, externally stramineous. Scutellum slightly convex, very coarsely punctate, laterally finely carinate to the excised apex; flavous with a black longitudinal streak down its centre to near apex; postscutellum flavous. Abdomen closely punctate and dull; basal segment shagreened, with sides of the broad postpetiole distinctly punctate; gastroceli striate and deeply impressed, broader than the aciculate intervening space; hypopygium extending to apex, terebra black and hardly exerted. Legs normal, anterior paler, claws minute; anterior tarsi subdilated, hind coxæ subacutely dentate on their inner side. Wings hyaline, radix and tegulæ fulvous, costa and stigma black; areolet triangular, coalescent above, distinctly produced externally, broader than high; nervelet, and another in second recurrent, distinct; discoidal cell subparallel, lower basal nervure vertical and very slightly postfural. Length, 13 mm. ♀ only.

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Thorax cærulescent and metallic, with its disc green and reticulate; notauli wanting; areola small and quadrate, emitting the entire costule from near its apex; petiolar area narrow and parallel-sided. Scutellum stramineous and subglabrous, elevated and laterally margined throughout. Abdomen fusiform and brilliant blue with basal segment fulvous, its apex and the apices of the second and fifth to seventh segments pale stramineous; first segment convex and nearly smooth, the second a little dull with longitudinal striation and large gastroceli; terebra not exerted, its base covered by hypopygium; venter black with the two basal segments white and alone plicate. Legs clear fulvous, with only the anterior coxæ white and hind tarsi black. Wings slightly clouded; stigma black, radix and tegulæ testaceous; cubital nervure, bearing very slight nervelet, straight and subparallel with the anal; areolet not coalescent above, radius apically reflexed. Length, 14 mm. ♀ only.—Extremely distinct from both Cameron's species in its conspicuous coloration, black face, narrower abdomen, and in the straight inner cubital nervure with sessile areolet and apically curved radius. India bor.; Dehra Dun and, I believe, Assam.

—The peculiar prolongation of the elevated frontal orbits below the ocelli is remarkable.—Taken at Entebbe in Uganda between 10th and 20th March, 1914, by C. C. Gowdey.

#### CTENICHNEUMON.

The third of the subgenera into which Thomson split the Wesmaelian genus *Amblyteles* (Opusc. Entom. xix. 1894, p. 2083). I have already assigned to it one South African species (Ann. S. Afr. Mus. xv. 1916, p. 365); three of the palearctic kinds that extend to Algeria fall herein; and Dr. Roman has recently shown that the Egyptian *A. tauricus* Kriechb. (Entom. Tidskr. xxxi. 1910, p. 157, ♂ ♀) is also referable to it.

##### 1. *CASTANOPYGUS*, sp. n.

A slender and somewhat small, black male with the antennæ (except apices), anterior tibiæ and femora, face (except its stramineous orbits) and clypeus, fulvous; and the anus from base of fifth segment, crimson; wings evenly infumate. Head small and transverse, posteriorly obliquely constricted; frons and face subconfluently punctate, clypeus irregularly punctate, short and impressed in centre of its truncate apex; labrum exerted. Thorax immaculate black, closely punctate and not dull; notauli deeply impressed; metathorax convex, with stout carinæ; areola subtriangular, apically truncate, basally constricted and acuminate at postscutellum; spiracles elongate, apophyses wanting. Scutellum deplanate, apically aciculate and laterally carinate to centre. Abdomen sublinear and dull with second segment striate; postpetiole abruptly explanate, closely aciculate, with spiracles prominent and its apical angles punctate; gastrocæli deeply impressed and somewhat large; valvulæ red, extending to apex. Legs slender and black with the front tarsi, tibiæ, and apical half of femora internally, pale; tarsi setiferous. Wings small, infumate throughout; tegulæ and stigma black; areolet exactly pentagonal, broad above; nervelet wanting, lower basal nervure slightly postfurcal. Length, 11–12 mm. ♂ only.—Closely allied in coloration to *Amblyteles castanopygus* Steph.—Males were taken on the western foot of the Aberdare Mountains, at an altitude of 8300 feet, on 1st March, 1911, in British E. Africa.

##### Subtribe *Heresiarchini*.

The following genera are here grouped under this subtribe in a somewhat different sense from that intended by its erector in Smith's 'Insects of New Jersey,' 1900, p. 567; though hardly from that of Wesmael when erecting the typical genus *Heresiarches* (Mém. couron. Acad. Belg. 1859, p. 93), since the latter makes no reference to the shape of the face which, on the contrary, is shown (as figured) to be not transverse. Its metathoracic spiracles are linear, and the restriction of the group in my 'British Ichneumons' of 1903 was for local purposes only.

As a matter of fact there appears to be but a single foundation which consists solely of the simple mandibles, ending in a single point or tooth in place of the bidentate apex usual in Ichneumonidæ, to distinguish this group from the Oxyptygini; and I do not find that Ashmead's characters (Proc. U.S. Nation. Mus. 1900, p. 12), "Head, viewed from in front, broader than long; occiput strongly concave, the temples broad, full," no repetition of which is made at lib. cit. p. 20, are constant. At all events the following genera all have the face longer than broad and bear facies of Oxyptygini, usually with the remote hypopygium of that subtribe. Some local cause for which we are at present unable to account—not improbably peculiar ease of emergence from the host-pupa—has eradicated the lower mandible, and on that account thrown these genera in a sufficiently convenient group, differing in nothing but the mandibular structure from Amblyptygini and Oxyptygini\*. In all other respects *Myermo*, *Chiaglas*, etc., might be considered true *Stenichneumon*-species, while *Fileanta ruficauda* Cam., from India, is almost a true *Amblyteles palliatorius* Grav., from Europe.

Neither Wesmael nor Berthoumieu recognized the present Subtribe; but Schmiedeknecht in 1902 adds to the already known four genera *Myermo*, *Fileanta* and *Setanta* from India, of which I have shown (cf. *Amblyteles* supra) the last to be a mere synonym.

*List of Heresiarchid Genera.*

- STENODONTUS Berthoumieu, Ann. Soc. Entom. France, lxx. 1896, p. 346 = *Gnat-hoys* Wesmael, Nouv. Mém. Acad. Brux. xviii. 1844, p. 165 (nec Westw. 1842).—Europa, Africa bor.
- HERESIARCHES Wesmael, Mém. couron. Acad. Belg. viii. 1859, p. 93.—Europa.
- RHIXIDERMUS Förster, Verh. preuss. Rheinl. xxv. 1868, p. 192 (*species exstat.*)—Europa.
- PLAGIOTRYPES Ashmead, Proc. U.S. Nation. Mus. xxiii. 1900, p. 20.—Amer. bor.
- GYRODONTA Cameron, Ann. Nat. Hist. vii. 1901, p. 485.—India.
- FILEANTA Cameron, Ann. Nat. Hist. vii. 1901, p. 525.—India.
- MYERMO Cameron, Ann. Nat. Hist. vii. 1901, p. 523.—India, Burma.
- MIOJOPPA Cameron, Zeitschr. Hymen. u. Dipt. ii. 1902, p. 391.—India.
- ALGATHIA Cameron, Zeitschr. Hymen. u. Dipt. ii. 1902, p. 392.—India, Burma.
- CHIAGLAS Cameron, Ann. Nat. Hist. ix. 1902, p. 152 et l. c. xx. 1907, p. 81.—India.
- NENARIA Cameron, Ann. Nat. Hist. xi. 1903, p. 313.—India.
- CASPIPINA Cameron, Trans. Entom. Soc. Lond. 1903, p. 219.—Assam.
- TRIPTOGNATHUS Berthoumieu, Genera Insect. xviii. 1904, p. 49.
- MACROPHATNUS Cameron, Rec. Albany Mus. i. 1905, p. 232 et Ann. S. African Mus. v. 1906, p. 175.
- ROSSELLA Cameron, Ann. South African Museum, v. 1906, p. 176.—Africa mer.
- ALLONOTUS Cameron, Ann. Nat. Hist. xx. 1907, p. 29.—Borneo.
- ORTHOGNATHELLA Szépligeti, Faun. S.W. Australiens, i., ix. 1908, p. 320.—Australia.
- HERESIARCHOIDES Brethes, Ann. Mus. Buenos Aires, xix. 1909, p. 51.—Argentina.

\* In the European fauna, such things as *Ichneumon rufidens* Wesm. and *Amblyteles uniguttatus* Grav., fall into the present category.



## MAGWENGA, gen. nov.

Mandibles unidentate, apically acuminate, not externally sulcate; cheeks and temples elongate and quite straight, not buccate; frons centrally carinate; occiput and juxta-scröbal orbits acutely margined. Flagellum filiform and apically strongly attenuate, its basal joints elongate. Metathoracic spiracles linear and elongate; metanotum with neither carinæ nor areæ, its centre slightly elevated. Scutellum laterally carinate throughout. Postpetiole not at all sculptured, with no apical fovea; gastrocæli large; apex of second segment centrally emarginate; hypopygium remote from anus. All the claws stoutly pectinate. Wings hyaline with a central fascia and apical spot nigrescent.—Nearest to *Caspipina*, but the cheeks are not buccate, the flagellum not compresso-dilated; metanotum excarinate; postpetiole neither basally elevated nor apically foveate; basal nervure not continuous; tarsi pectinate and wings maculate.

## 1. MACULIPENNIS, sp. n.

A dull black female, with the hind coxæ red; the wings centrally black-banded, with a circular apical spot. Head long, glabrous and sparsely punctate, behind the eyes parallel; clypeus and face deplanate, hardly discreted, with confluent and somewhat close punctures, apex of former truncate and laterally margined; palpi white; cheeks longer than breadth of the white base of mandibles. Antennæ black with their centre, except laterally, white-banded. Thorax stout, convex and closely punctate, discally smooth; notauli obsolete, speculum small and glittering; metathorax discally smooth and shagreened, its base depressed but not sulcate; petiolar area triangular and laterally striate, very small; apophyses wanting. Scutellum large, smooth with a few punctures, broadly margined, with extreme apex aciculate. Abdomen elongate-fusiform, roughly punctate, with anus from fifth segment and the postpetiole glabrous; petiole, or at least its base, red; gastrocæli large and double breadth of their intervening space; terebra hardly exerted. Legs stout; anterior with coxæ, inner side of tibiæ and of their femoral apices, flavidous; hind trochanters and their indefinitely scopulate coxæ bright red; third and fourth hind tarsal joints white. Wings hyaline and not broad; areolet not quite coalescent above, lower basal nervure strongly postfurcal; a central broad infumate band from the basal to centre of the disco-cubital nervures and a round concolorous spot on apex of radius; hind wing also infumate in radial cell. Length, 10-11 mm. ♀ only.—These remarkable females are from 3700 feet at Buddu on the west shores of the Victoria Nyanza, on 19th September; and from 3800 feet to the south-east of Buddu, in the Tero Forest, on 26th September, 1911, in Uganda.

## MIOJOPPA.

Head not broader than thorax, roundly constricted posteriorly; temples shorter than eyes; face subdeplanate and not discreted from clypeus; cheeks not short, mandibles gradually constricted to apex, palpi slender and elongate. Antennæ stout and not longer than body, broadly white-banded, and beyond their centre compresso-dilated. Mesopleuræ obliquely carinate above their centre; metathorax gradually and roundly curved, with its lateral carinæ entire; petiolar area parallel-sided, narrow and extending to basal third of metathorax; areola obsolete, incomplete, remote from metanotal base; spiracles suboval and thrice longer than broad; apophyses wanting. Scutellum deplanate, stoutly carinate laterally to near its centre; postscutellum basally bifoveolate. Abdomen with first longer than second segment, and gradually explanate from petiole; second and third segments closely punctate; gastrocœli superficial, longer than broad with the intervening space closely striate; second and third ventral segments plicate; terebral valvulæ exerted, as long as two anal segments. Basal nervure not continuous through median; nervelet indistinct.—I place this genus [of which the above is Cameron's diagnosis (*Zeitschr. Hymen. u. Dipt.* ii. 1902, p. 391), slightly emended by an examination of the genotype] next the *Platyurini*, with which the structure of the basal segment is in exact agreement; and I am not sure that it were not better actually merged therein, in spite of the mandibular conformation. The single known species from India was described, loc. cit., incorrectly as female.

1. *QUADRILINEOLA*, sp. n.

A dull, black and closely punctate male with the legs except basally, antennæ except disc of scape, mandibles except apices, and the palpi fulvous; facial orbits shortly and two facial vittæ, a small callosity before radices, a dot at apical angles of postpetiole, scutellum except extreme base, and the postscutellum flavous. Clypeus apically truncate and a little reflexed; frons and face closely punctate and pale pilose; areola short, semi-circular, and apically incomplete; scutellum shining, sparsely punctate, and subconvex; gastrocœli small and valvulæ luteous; coxæ and trochanters black; tarsi simple; areolet very broad above; radius sinuate. Length, 11 mm. ♂ only.—The sculpture and outline are similar to *Cratichneumon annulator* Fab., rather than *Platylabus pedatorius* Fab., both black males of like form and structure; the distribution of the pale marks is peculiar.—The type was taken at Deelfontein in South Africa about 1903 by Col. Sloggett.

Subtribe *Listrodromini*.

## NEOTYPUS.

To the two species of this genus, which is likely to find its

headquarters in Africa, and was erected by Förster (Verh. pr. Rheinl. 1868, p. 194), that have already been recorded by Kriechbaumer and myself, I can now add a third.

1. *OBSCURATOR*, sp. n.

A small, dull, black female with the thorax and petiole entirely red. Head transverse and narrow behind eyes; frons closely punctate and apically trans-striate; face finely trans-striate, centrally elevated; clypeus glabrous, broad, uneven, bifoveate, apically emarginate and centrally subreflexed; labrum concealed, mandibles slender and dull testaceous. Antennæ elongate, slender, apically attenuate, with the basal joints elongate and centre white banded. Thorax short and stout, closely and evenly punctate, with deep notauli and dull speculum; petiolar area covering two-thirds of metathorax, discreted, its central area deeply concave and trans-striate; areola proportionately short, transverse-semilunate, not extending to the depressed base, emitting weak costulae from centre; spiracles oval and oblique, apophyses stout and obtuse. Scutellum red, convex, dull, closely punctate, laterally margined to near apex. Abdomen ovate, dull, very finely punctate; basal segment red and linear, abruptly explanate at the black postpetiole, which is finely punctate-aciculate with its apical angles and those of the second segment white-dotted; gastroceci very small; apex of fifth segment narrowly, of sixth broadly and whole of seventh, white; terebra black, not exerted. Legs black and not short, the anterior tibiae and front femora mainly testaceous; coxæ simple, claws pectinate. Wings hyaline, stigma and nervures black; areolet broad above, nervelet distinct, basal nervure continuous through the median. Length, 8 mm. ♀ only.—The type occurred at Mlanje on 26th May, 1913, in Nyasaland.

Subtribus **Platylabini.**

**PLATYLABUS.**

To my Table of the southern African species of this genus (Ann. S. Afr. Mus. xvii. 8, 1917, p. 201) I am now enabled to add a couple of very distinct species, and the alternate sex of another.

1. *ATRICINCTUS*, sp. n.

A rufescent-testaceous species with profuse black markings, and the setaceous flagellum pale banded. Head slightly broader than thorax, and but little narrowed behind the strongly prominent eyes; ocelli and mandibular apices alone nigrescent; face and mouth flavidous, the former obsoletely punctate and not discreted from the apically truncate clypeus; labrum exerted, lower mandibular tooth very small. Thorax dull, with the mesonotum shagreened and notauli distinct; petiolar area, post-scutellum, and disc of frenum abruptly black; areola as long as

broad, basally rounded, emitting fine costulæ from its centre; basal area distinct, spiracles elongate, apophyses wanting. Scutellum dull and somewhat elevated with dark lateral carinæ to near apex. Abdomen cylindrical and dull with base of segments two to five, and centre of the second, black-banded; basal segment smooth, shining and basally whitish; thyridii transverse-linear, with the intervening space very narrow; valvulæ obsolete. Legs slender with apices of the hind coxæ and of their femora nigrescent, of their tibiæ infusate; hind tarsi stramineous throughout. Wings normal and flavescens, with stigma and tegulæ flavous; areolet as broad as high, subcoalescent above, emitting recurrent from its centre; basal nervure continuous through median. Length, 10 mm. ♂ only.—The black-banded abdomen and metathorax are distinctive.—One male at Fort Portal Road, Mbarara, in Southern Toro, at 4000 feet, on 22nd October, 1911, in Uganda.

## 2. *MEDIORUFUS*, sp. n.

A pale testaceous species with sparse black and white markings; thorax tricoloured. Head transverse and abruptly constricted behind the prominent eyes; frons smooth with its base, like the elevated ocelli, black; all the orbits broadly, mouth and face stramineous, the last deplanate and obsoletely punctate, not discreted from the apically truncate clypeus, which is centrally impressed; lower mandibular tooth and the occipital margin strong and nigrescent; ♂ with centre of frons and whole occiput black. Antennæ setaceous, black and a little incrassate beyond their broadly white-banded centre; basal joints rufescent beneath. Thorax dull; mesonotum laterally deep black, which colour is bounded internally by a narrow flavous longitudinal band; elongate callosities before radices clear stramineous, notauli short and deeply impressed; metanotum shining and sparsely punctate; areola cordiform, longer than broad and apically subconstricted, emitting strong costulæ before its centre; petiolar area transaciculate, spiracles elongate, apophyses wanting. Scutellum margined laterally to apex and, like the post-scutellum, nitidulous and stramineous. Abdomen dull, discally deplanate, of ♀ elongate-fusiform; the four basal segments closely sculptured, with postpetiole and base of the second centrally aciculate; thyridii triangular, not small and hardly narrower than the intervening space; anus from base of sixth segment, valvulæ and the slightly exerted terebra, black; seventh segment of both sexes discally white; ♂ with disc of third and fourth segments black-marked. Legs slender and normal, with the hind tarsi apically nigrescent and their tibiæ straight. Wings hyaline, tegulæ and stigma testaceous; areolet as broad as high, coalescent above and emitting recurrent slightly beyond its centre; basal nervure continuous. Length, 9–10 mm. ♂ ♀.—The tricoloured mesonotum and anus are remarkable.—The type occurred on 14th July, 1910, at Blantyre, in Nyasaland, to Dr. J. E. S. Old;

the androtype was captured at 6400 feet, on Mount Kokanjero, to the south-west of Elgon, in early August 1911, in Uganda. A rather differently coloured female is labelled simply "Erythria," and shows no structural modifications.

### 3. *CETA* Morl.

A female of this species which I brought forward in Ann. S. Afr. Mus. xvii. 8, 1917, p. 203, with the capital disc entirely red, was taken at St. James, in Cape Town, on 24th October, 1911, by K. H. Barnard.

### 4. *VALLATUS* Morl.

I was only able to indicate the male of this species (Ann. S. Afr. Mus. xv. 1916, p. 370). The ♀ differs in having the ocelli alone black, the six basal flagellar joints apically sub-nodulose and the first pale beneath; the stramineous thoracic markings are obsolete and mesonotum totally black; the areola not broader than long; the scutellum is testaceous, postpetiole nigrescent, terebra black and but slightly exerted.

Fort Portal Road, at Mbarara, Southern Toro, at some 4000 feet, on 22nd October; and on the north-west shores of the Victoria Nyanza, at 3800 feet, in the middle of September 1911, in Uganda.

## Subtribe *Phæogenini*.

### BENECELES.

Head fully as broad as thorax; apex of clypeus broadly and centrally impressed, its sides obliquely sulcate above; mandibles stout and parallel-sided with the upper tooth acute and the lower the shorter; temples small and obliquely constricted. Antennæ longer than body with scape distinctly shorter than basal flagellar joint, which is much longer than the second. Meta-notum slightly impressed basally and not produced apically, with complete areæ and no apophyses; areola broader than long and subconstricted towards its truncate and strongly carinate apex; spiracles small and subcircular. Scutellum evenly subconvex and basally carinate on either side; postscutellum stout. Abdomen elongate and exactly parallel-sided from the postpetiole to the exerted terebra; gastrocœli large, oblique, deeply impressed and remote from base; lunulæ large, anus pale-marked, terebra reflexed and sometimes subvertical. Hind legs much longer than the anterior. Areolet pentagonal, constricted above; nervelet wanting; basal nervure continuous through the median; nervellus intercepted far below its centre.

"The small, round metathoracic spiracles refer this genus to the *Phæogenini*. In Ashmead's 'Classification of the Ichneumon Flies' it would come in near *Herpestomus*. Characteristic is the long, sharp pointed apical and indistinct subapical tooth of the mandibles," says Cameron, in erecting this genus (Entom. xxxvi. 1903, p. 260) on a single Indian individual.



I consider the genotype more remarkable in its large and remote gastrocoeli, subcubical head, which is no narrower than the thorax, the reflexed terebra, and the very broad cheeks which are anteriorly hardly narrower than the eyes. In all species the metathoracic spiracles are suboval.

1. DIMIDIATUS, sp. n.

A black species with the thorax and petiole red, anus and trochanters white. Head transverse, deep black, and posteriorly narrow; frontal orbits broadly, and centre of the external ones narrowly, white; face and clypeus black, deplanate, closely punctate, discreted, with the latter broad and apically truncate; palpi white. Antennæ filiform, broadly white-banded with the basal joints rufescent beneath. Thorax cylindrical, dull and brick-red with pronotum white and prosternum nigrescent; mesonotum closely shagreened, with elongate but superficial notauli; metathorax somewhat short, closely punctate; areola as broad as long, apically truncate and basally rounded, emitting distinct central costulæ; basal area entire, the petiolar subvertical and transaciculate; apophyses wanting, spiracles exactly ovate. Scutellum shining, quadrate, sparsely punctate and laterally margined throughout. Abdomen deep black, with the first segment brick-red; three basal segments dull, the first convex and shagreened with prominent lateral tubercles; thyridii transverse-linear, intervening space very narrow: segments five to seven deplanate, quadrate and strongly nitidulous, the seventh white; terebra slender, black, slightly exerted. Legs black with the anterior, except basally, subtestaceous; all trochanters, except apices of hind ones, pure white and calcaria subconcolorous; hind coxæ simple. Wings hyaline and somewhat small; tegulæ and stigma dull ochraceous; areolet pentagonal and not large; basal nervure continuous. Length, 9 mm. ♀.—Certainly allied to the genus *Dicelotus* in its abdominal structure.—Taken at Durban during 1902 by F. Muir, ex coll. D. Sharp.

2. POLITANUS, sp. n.

A black species with most of the thorax and legs testaceous, and the anus white. Very similar to the above species in structure, but with the basal segment black; the whole metanotum with frenum and a central spot at mesonotal apex black; the external orbits broadly, with the face and mouth except longitudinally in the centre, white; the legs are not white-marked and the areola is a little transverse. Length, 7 mm. ♀ only.—Captured at Western Ankole during the middle of October 1911, at between 4500 and 5000 feet, in Uganda. Phæogenini appear rare in Tropical Africa; of the twenty species recorded from the Continent, no more than four are known south of the Sahara, besides those here described.